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Creating Opportunities

2015 ANNUAL REPORT



Creating Opportunities

2015 ANNUAL REPORT

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Making Personal Investments in Biomedical Research and Careers

Sixty Years of Investing in Scientists and Biomedical Science

Founded in 1955, the Burroughs Wellcome Fund is an independent private foundation dedicated to advancing the biomedical sciences by supporting research and other scientific and educational activities.

Within this broad mission, BWF seeks to accomplish two primary goals—to help scientists early in their careers develop as independent investigators, and to advance fields in the biomedical sciences that are undervalued or in need of particular encouragement.

BWF's primary approach is to target individual researchers at degree-granting institutions in the United States and Canada, providing financial support through our competitive, peer-reviewed award programs. In complement to our support of academic research, we also make grants to nonprofit organizations whose missions improve the overall environment for scientific activities and careers.

Above all, BWF establishes relationships and invests in the person. We prioritize the researcher's individual development—designing awards that enhance opportunities for training, collaboration, and idea-sharing. We then facilitate networks, gatherings, and conversations to further provide awardees with a diverse community of expertise, mentorship, and inspiration.

Our investment in the person ensures that each award has life beyond any single grant—that creative, original, and unique solutions to biomedical problems will continue to rise throughout an investigator's career—and in turn, confer good health and strength for all humankind.



A Legacy Across Centuries

BWF was created in 1955 as the corporate foundation of Burroughs Wellcome Co.—the U.S. branch of the historic Wellcome pharmaceutical enterprise.

The Wellcome enterprise was established in 1880 in the United Kingdom by two young American pharmacists, Henry Wellcome and Silas Burroughs, who moved to London to manufacture and sell "compressed medicines" —that is, pills—which they believed could replace the potions and powders of the day. The notion of standardized doses of easily consumed medication, as popularized by Burroughs and Wellcome, would change human health forever.

The firm prospered. After Burroughs died in 1895, Wellcome directed the growth of the company into an international network with subsidiaries in numerous countries on several continents. As the business grew, Wellcome held firm to his belief that research was fundamental to the development of excellent pharmaceutical products, and he established the industry's first research laboratories.

When Henry Wellcome died in 1936, his will vested all of his corporate shares in a new organization—the Wellcome Trust—devoted to supporting research in medicine and allied sciences, and to maintaining museums and libraries dedicated to these fields. From its London offices, the Trust grew to become the world's largest charitable foundation devoted exclusively to the biomedical sciences.

The Trust's global success inspired the establishment of BWF as a parallel foundation serving biomedical research in North America. In 1993, BWF received a $400 million gift from the Wellcome Trust to become a fully independent foundation, headquartered in the Research Triangle Park of North Carolina.

The importance of curiosity-driven research—as endorsed by Henry Wellcome more than 100 years ago—guides the mission of the Burroughs Wellcome Fund. Investing in the research and careers of the best and brightest scientists offers the fullest promise for improving human health, and we will continue our commitment to this belief in the centuries to come.

"What we wish to see in today's outstanding young researchers is creativity, originality, a unique way of looking at problems. And they must have tenacity, belief in their vision, and the will to pursue it."

GEORGE H. HITCHINGS



President's Message

Iris B. Evans, the first Executive Director of the Burroughs Wellcome Fund, once remarked "We want to not only give a grant, but to invest in the person. We want to get to know them, to establish a relationship with them."

The Burroughs Wellcome Fund celebrated its 60th anniversary in 2015, and her words still ring true—perhaps now more than ever.



John E. Burris, Ph.D.
President
Burroughs Wellcome Fund

When I reflect upon what has made the Burroughs Wellcome Fund a successful organization, I think our willingness to invest in personal relationships has been perhaps our most powerful asset.

We do not simply fund research. We create opportunities for researchers to engage with one another, sparking conversations and collaborations. We cultivate a diverse community of peers and mentors, so our award recipients can brainstorm and innovate across institutions and disciplines. We support our awardees in their maturing careers, so they can navigate and negotiate the business of academia towards advancement. We want our investment in a researcher to last more than just one project or award cycle—but for the lifetime of impact they will have on biomedical science.

In 2015 we again invested in a remarkable group of scientists and had the opportunity to welcome them to the Burroughs Wellcome Fund family at our annual new awardee meeting, hosted at the Fund's headquarters in October. Here, these promising investigators shared the unique visions and inventive approaches of their research questions with their new colleagues—including past award recipients—and had their first taste of the Burroughs Wellcome community that will be there to support them as they launch their careers.

We continued to invest in improving science education in North Carolina—giving back to our home state by energizing resources for STEM: science, technology, engineering, and mathematics. We supported programs that put critical thinking and the excitement of discovery directly into the hands of K-12 kids. We provided career awards to proven STEM teachers so they can inspire others with education innovations. And we leveraged the resources and insights of the NC Science Mathematics and Technology Education Center to amplify our goal of advancing meaningful STEM opportunities for students in our state.

And in giving, we had the privilege of making three one million dollar endowment grants to organizations in which we have had a strong and long term relationship—the Marine Biological Laboratory, the North Carolina School of Science and Mathematics, and the North Carolina Science Festival.

Since 1994, the Fund has given away more than $550 million in grants, while growing our endowment from $420 million to $720 million. But as the Fund looks towards its next 60 years, we will be looking beyond mere numbers to measure the capital gain of our investments.

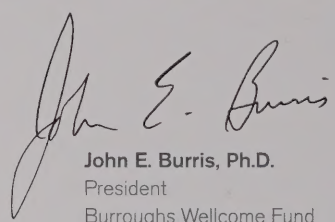
At the Fund's annual Board of Directors meeting in May, past chair Dr. George Langford spoke to us about his

"We do not simply fund research. We **create opportunities** *for researchers to engage with one another, sparking conversations and collaborations. We cultivate a diverse community of peers and mentors, so our awardees can brainstorm and innovate across institutions and disciplines."*

childhood as an African-American growing up in a segregated, rural North Carolina. He recalled his individual struggles, but also the community of supporters and advisers who shepherded his eventual success.

Stories like Dr. Langford's renew and inform our dedication to investing in the person. We will continue our mission of advancing biomedical science by supporting research and other educational activities, but with awareness and an eye towards opportunity for diverse voices and career guidance. We will continue to nourish research talents, skills, and fields in need of attention, filling gaps to advance the whole. And we will continue to cultivate our community of scientists, educators, and worthy organizations—seeking the brightest and most promising in their fields to assist them towards unimagined possibilities.

When we make personal investments, we help nurture and advance the entire biomedical research enterprise—and, in turn, help confer good health and knowledge to all. These are worthy gains no number can quantify.



John E. Burris, Ph.D.
President
Burroughs Wellcome Fund

Fiscal Year 2015 Major Competitive Grant Awardees

Career Awards at the Scientific Interface

Lacramioara Bintu, Ph.D.
California Institute of Technology

Alistair Nicol Boettiger, Ph.D.
Harvard University

Julijana Gjorgjieva, Ph.D.
Brandeis University

Ann M Hermundstad, Ph.D.
University of Pennsylvania

Markita Patricia Landry, Ph.D.
Massachusetts Institute of Technology

Monica M Laronda, Ph.D.
Northwestern University

Chen Li, Ph.D.
University of California-Berkeley

Francisco Eduardo Robles, Ph.D.
Duke University

Allyson E Sgro, Ph.D.
Princeton University

Jeffrey Neil Stirman, Ph.D.
University of North Carolina-Chapel Hill

Vivek Venkatachalam, Ph.D.
Harvard University

Christina May Woo, Ph.D.
Stanford University

Career Awards for Medical Scientists

Jennifer M Alexander-Brett, M.D., Ph.D.
Washington University

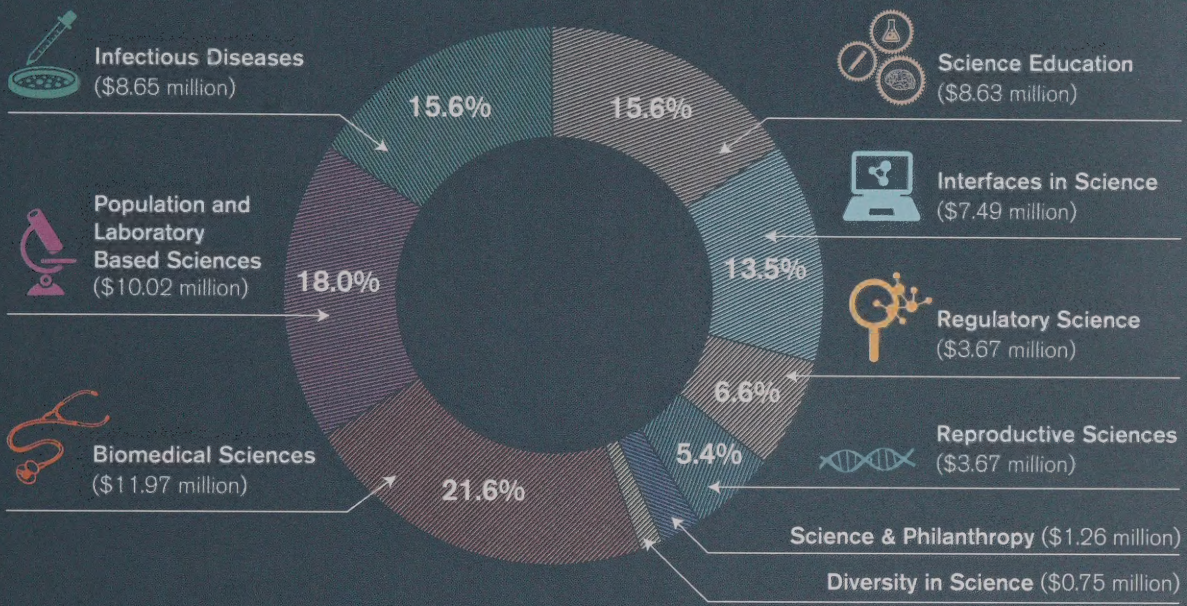
Daniel Evan Bauer, M.D., Ph.D.
Harvard Medical School

James Toliver Bennett, M.D., Ph.D.
University of Washington

Shadmehr Demehri, M.D., Ph.D.
Harvard Medical School

Charles Gawad, M.D.
University of Tennessee Health Science Center College of Medicine

BWF awarded $55.48 million in grants during fiscal year 2015.



For audited financial statements and evaluations of our grant programs, visit **www.bwfund.org/annualreport** or scan the QR code.

Matthew Blake Greenblatt, M.D., Ph.D.
Weill Cornell Medical College

Rajan Jain, M.D.
University of Pennsylvania Perelman School of Medicine

Matthew Stern Kayser, M.D., Ph.D.
University of Pennsylvania Perelman School of Medicine

Dan Avi Landau, M.D., Ph.D.
Weill Cornell Medical College

Kory Joshua Lavine, M.D., Ph.D.
Washington University School of Medicine

Bluma J. Lesch, M.D., Ph.D.
Massachusetts Institute of Technology

Joseph Douglas Mancias, M.D., Ph.D.
Harvard Medical School

Anna Victoria Rotberg Molofsky, M.D., Ph.D.
University of California-San Francisco

Sahar Nissim, M.D., Ph.D.
Harvard Medical School

Career Awards for Science and Mathematics Teachers

Tomika R. Altman-Lewis
Fayetteville Street Elementary School
Durham Public Schools

Katie Mauldin Matthews
Valle Crucis School
Watauga County Schools

Jennifer Michelle McCarthy
Jay M. Robinson High School
Cabarrus County Schools

Jodi S. Riedel
Wakefield High School
Wake County Public Schools

John D. Scarfpin
Havelock High School
Craven County Schools

Rolie 'Andi' Adrienne Webb
Alderman Road Elementary
Cumberland County Schools

Fiscal Year 2015 Major Competitive Grant Awardees continued

Career Guidance for Trainees

Icahn School of Medicine at Mount Sinai
Future leaders in science education and communication training program

Johns Hopkins University School of Medicine
How to be an intern: prepping for life outside academia

University of Alabama-Birmingham
UAB EXPERIENtial Learning for Career Enhancement in the Sciences (EXPERIENCES) Program

University of California-San Francisco
A career readiness framework for research trainees

University of California-San Francisco
Business concepts for biomedical scientists

University of Michigan Medical School
Mapping pathways for professional success in graduate and postdoctoral training

Vanderbilt University
Entrepreneurship and business training f or scientists

Innovation in Regulatory Science

Patrick Allard, Ph.D.
University of California-Los Angeles

Darla M. Goeres, Ph.D.
Montana State University

Erich S. Huang, M.D., Ph.D.
Duke University School of Medicine

Rustem F. Ismagilov, Ph.D.
California Institute of Technology

Sara Lynn Van Driest, M.D., Ph.D.
Vanderbilt University School of Medicine

Joseph C. Wu, M.D., Ph.D.
Stanford University School of Medicine

Investigators in the Pathogenesis of Infectious Disease

Jesse D Bloom, Ph.D.
University of Washington

Igor E. Brodsky, Ph.D.
University of Pennsylvania

Ken Cadwell, Ph.D.
New York University School of Medicine

Matthew James Evans, Ph.D.
Icahn School of Medicine at Mount Sinai

Andrew L Goodman, Ph.D.
Yale University

Elissa A Hallem, Ph.D.
University of California-Los Angeles

Sun Hur, Ph.D.
Harvard Medical School

Rahul Manu Kohli, M.D., Ph.D.
University of Pennsylvania

Li-Jun Ma, Ph.D.
University of Massachusetts-Amherst

Luciano A Marraffini, Ph.D.
Rockefeller University

Daniel Mucida, Ph.D.
Rockefeller University

Nan Yan, D.Phil.
University of Texas Southwestern Medical

Postdoctoral Enrichment Program

Ishmail Abdus-Saboor, Ph.D.
University of Pennsylvania

Breann L. Brown, Ph.D.
Massachusetts Institute of Technology

Travis James Chapa, Ph.D.
University of California-Los Angeles School of Medicine

Laura M. K. Dassama, Ph.D.
Northwestern University

David M. Garcia, Ph.D.
Stanford University School of Medicine

Tamia Alisha Harris-Tryon, M.D., Ph.D.
University of Texas Southwestern Medical Center-Dallas

Michael John Mitchell, Ph.D.
Massachusetts Institute of Technology

Samira Musah, Ph.D.
Harvard University

Thomas Pohl, Ph.D.
Princeton University

Elenoe Cheddena Smith, Ph.D.
Boston Children's Hospital/Harvard Medical School

David Ashley Van Valen, M.D., Ph.D.
Stanford University

60th Anniversary

1955-2015



A Legacy of Fueling Inquiry-Driven Research

During 2015, the Burroughs Wellcome Fund (BWF) awarded three, $1 million grants to organizations to support interactive science education activities for the public and students. These investments align with BWF's belief that the most effective way to achieve science literacy among students is to involve them in the scientific process, letting them explore naturally. By asking questions and participating in hands-on activities and experiments, students absorb basic scientific principles.

Funding the Morehead Planetarium & Science Center, N.C. School of Science & Mathematics, and the Marine Biological Laboratory supports BWF's underlying goal of introducing students to and encouraging students to pursue careers in science, technology, engineering, and mathematics (STEM).

Morehead Planetarium & Science Center

Through the BWF grant, the Planetarium will support and strategically plan the N.C. Science Festival, celebrating the cultural, educational, and financial impact STEM makes on the state. Launched in 2010, the Festival sponsors events in 95 N.C. counties and reached 330,000 participants in 2014. Universities, schools, libraries, parks, businesses, and museums partner with the Planetarium to host a variety of events. Participants and attendees can enjoy hands-on activities, science talks, laboratory tours, nature experiences, exhibits, and performances.

"We couldn't do the N.C. Science Festival without support from organizations like the Burroughs Wellcome Fund," said Todd Boyette, the Festival's co-founder and director of Morehead Planetarium. "We also couldn't do it without all of our event hosts, who constantly amaze us with the quality of their events."





John Burris with Todd Boyette, founder of the NC Science Festival, and Tom Ross, president of the University of North Carolina system.

N.C. School of Science & Mathematics (NCSSM)

The 2015 grant helped create the BWF Endowment for Student Research, Mentorship, and Innovation. The funds will support student research, mentorship, and innovation opportunities while investing in the next generation of North Carolina's science enthusiasts and advancing state-wide STEM education. According to NCSSM Chancellor J. Todd Roberts, existing research shows participation in this type of programming significantly increases interest in and entrance into STEM fields.

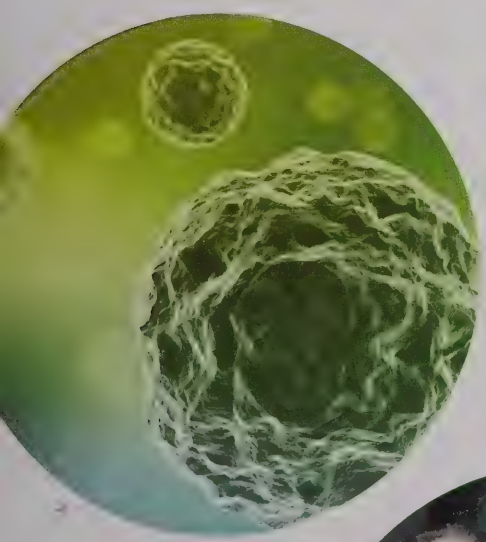
"As we all work to increase the number of bright young people entering STEM fields, this endowment will help us support student research, mentorship, and other innovative opportunities," he said. "Research has shown that students who participated in original research were 70 percent more likely to pursue STEM degrees, and students who participated in STEM mentorship/internships were 20 percent more likely to major in a STEM field than those who did not."

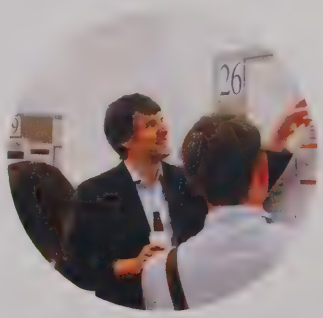
Marine Biological Laboratory (MBL)

Since 1986, BWF has awarded the MBL $10 million, and the 2015 grant funded students in the MBL Advanced Education Program. This initiative, which operates on a need-blind basis for admission, focuses on physiology, biology of parasitism, frontiers of reproduction, molecular mycology, and embryology. Each year, MBL trains 500 students from around the world through more than 20 intensive laboratory-based courses, pairing scientists with advanced graduate and post-graduate students. These efforts give students biological and biomedical research training.

In addition, through a BWF gift, Rae Nishi, the current University of Vermont Neuroscience Graduate Program director and head of the Neuroscience, Behavior, and Health Initiative, will join MBL as the new Director of Education. Her tenure will begin January 2016, and she will serve as administrator and coordinator of MBL Discovery and Special Topics courses, workshops, conferences, as well as graduate and undergraduate programs.

"The Burroughs Wellcome Fund has been a strong and loyal supporter of the laboratory and our discovery courses for nearly three decades," said MBL President and Director Huntington Willard. "We are extraordinarily grateful for their generosity and pleased to partner with them to provide innovative hands-on training opportunities for the most promising students in the biological sciences. This endowment gift will help to ensure the success of the MBL education program well into the future."







John Burris and Hunt Willard, president of the Marine Biological Laboratory.



Biomedical Sciences

WE WATCH OVER THE WELL-BEING OF BIOMEDICAL SCIENTISTS

The biomedical sciences provide a firm foundation for improving human health. But to advance biomedical science, we have to close gaps in developing biomedical research talents.

The Burroughs Wellcome Fund is committed to fostering the development of the next generation of academic research scientists. Through our Biomedical Sciences portfolio, we identify and invest in talent pathways and career development elements that best benefit the current needs of the biomedical research landscape.

Today, our major focus is the Career Awards for Medical Scientists (CAMS). CAMS addresses the on-going need to increase and sustain the number of physician-scientists within the ranks of biomedical researchers, and to build synergy between basic research and clinical practice. BWF believes that these physician-scientists can bring unique perspectives to solving biomedical problems, given their dual experience in clinical training and hypothesis-based research. As such, the CAMS program is designed to help medical doctors transition into research careers, as they complete postdoctoral fellowship training and early years of faculty service.

A supplementary focus is our Collaborative Research Travel Grant (CRTG). BWF understands that science is a process best shared. But often in biomedical research, prospective colleagues or cutting-edge equipment are located at distant institutions, and funding limitations may preclude these exploratory, enriching visits. The CRTG grant allows investigators and postdocs to make these domestic and international travels—and develop their skills, collaborations, and career directions.

Career Awards for Medical Scientists (CAMS)

The declining participation of the physician-scientist in biomedical research is an on-going problem.

Physician-scientists offer unique perspectives that bridge real-world practice with the lab bench: their synergy of clinical training and research thinking can bring new insights to solving biomedical challenges. We need to increase the number of physician-scientists, keep them in research, and sustain their presence among research communities and institutional leadership.

The Burroughs Wellcome Fund wants to help more physician-scientists become established in academic careers. To facilitate a physician's transition from medical service commitments towards active research, we have reformulated our successful Career Awards in the Biomedical Sciences (CABS) program into the Career Awards for Medical Scientists (CAMS).

CAMS is tailored for physician-scientists who are still in a mentored, non-faculty position such as a residency, fellowship, or postdoc. The award provides $700,000 in funding over five years for a physician-scientist to bridge the final years of their advanced postdoctoral or fellowship training, and into their early years of faculty service and independent research.

Our hope is to steer more physician-scientists towards tenure-track academic appointment in basic biomedical, disease-oriented, or translational research, with at least 75-percent protected time for research activities. We also seek out applicants whose specialties align with emerging gaps in biomedical science, such as the interface of neuroscience and the practice of psychiatry.

To advance biomedical science, we have to amend gaps in developing biomedical research talents. Increasing and sustaining physician-scientists in biomedical research careers will ensure the continued contributions of these unique talents—and strengthen our overall prospects for improving human health.

Collaborative Research Travel Grant (CTRG)

The Burroughs Wellcome Fund understands that science is a process best shared. But often in biomedical research, prospective colleagues or cutting-edge equipment are located at distant institutions, and funding limitations may preclude these exploratory, enriching visits.

BWF helps researchers make that trip. Our Collaborative Research Travel Grants (CRTG) provides up to $15,000 for domestic or international travel for one year—helping investigators and postdoctoral trainees to visit labs at other institutions to learn new research techniques, or to begin or continue research collaboration.

CTRG funds can be applied towards airfare, accommodations, meals, ground transportation, and other travel expenses—as well as lab supplies and other materials required for the visit. Researchers can make multiple visits to one collaborator or visit multiple collaborators. Those with doctorate-level training in the physical, mathematical, or engineering sciences have been especially encouraged to apply.

BWF knows that the best brainstorms and innovations happen when researchers can collaborate and share ideas in person. The CTRG program lets our awardees to go visit a colleague—and grow their skills, their collaboration, and their career. We want them to meet up, and make science happen.



Career Guidance

GIVE RESEARCH PROFESSIONALS THE PROFESSIONAL GUIDANCE THEY DESERVE

The Burroughs Wellcome Fund primarily invests in trainees and early-career investigators who have tremendous potential to become leaders and innovators in the biomedical sciences. However, we realize that the skills scientists need to transition from employment to professional success are not always taught at the lab bench.

Graduate programs classically provide Ph.D. trainees with deep knowledge, hands-on experience, and the ability to ask meaningful questions and find answers to them. But for many employers, the most desirable job candidates also have experience managing projects and people; the capacity to think independently, with initiative and entrepreneurialism; and advanced practice in communicating clearly about complex ideas.

Yet, emphasis on this comprehensive mentoring approach may fall short in some research training environments. At the same time, students, postdocs, and mid-life career-changers often report frustrations in attempting to translate their full skill set to tasks within and beyond the academic realm.

The Burroughs Wellcome Fund will continue to invest in pilot projects that demonstrate practical approaches to prepare scientists for career transitions, through our Career Guidance for Trainees award. We want to assess approaches that help trainees acquire and hone the skills expected of knowledge workers and institutional leaders. We also want to help scientists find their optimal path within the research landscape—whether as principal investigators, in non-tenure track positions, in industrial careers, or in scientific careers away from the bench.

In all other professional training environments—commercial, legal, spiritual, among others—there is an intentional emphasis on leadership, management, and career guidance. So let's improve how we prepare biomedical scientists for jobs at and away from the lab bench, and give research professionals the professional guidance they deserve.

Career Guidance for Trainees (CGT)

Planning for careers is difficult in any field—yet this is one facet that academic bodies often neglect when cultivating scientific talents.

To give research professionals the professional guidance they deserve, the Burroughs Wellcome Fund conducts the CGT award.

The program provides one-year grants up to $50,000 for academic institutions, professional societies, and other nonprofit organizations to demonstrate affordable projects that help individual scientists assess their personal growth and effectively pursue career paths.

BWF aims to advance innovative proposals that have the potential to be deployed at larger scales. An idea should augment the basic "Ph.D.-level" skills already offered by institutions—by helping research trainees discover and match their skills and interests with potential employers, or by providing them the tools to critically assess their vocational strengths with professional options.

Our intentions are inspired by two national programs not developed with BWF support: FASEB's Individual Development Plan, a tool that helps structure key conversations between trainee and advisor; and Preparing Future Faculty, a program that provides trainees opportunities to observe and experience faculty responsibilities. Both offer high-impact career preparation opportunities, and began at a pilot scale before being adopted across the United States.

As institutional leaders training future professionals in science—our future colleagues—we have a responsibility to ensure a certain caliber and educated strategy in the mentorship we provide.

So we are encouraging innovations in scientific career counseling. Our goal is to help researchers navigate their vocational journey—and guide them to fulfilling professional paths matching their individual strengths with scientific challenges.



Career Development Guides The Fund developed a series of career development guides that focus on a number of issues scientists face. They explore giving talks, staffing your lab, team science, intellectual property, and others. Email news@bwfund.org for a full offering.



Diversity in Science

ENRICHING BIOMEDICAL RESEARCH WITH NEW VOICES AND FACES

The Burroughs Wellcome Fund believes that racial, ethnic, and cultural diversity is essential to the process and advancement of scientific innovation, academic discourse, and public service. In 2012, we launched the Diversity in Science program with the specific goal of supporting trainees from communities of color currently underrepresented in biomedical research.

Molding a diverse research community begins with mentoring diverse talents. To address this foundational issue, BWF has created the Postdoctoral Enrichment Program to support early career scientists and engineers of Latino, Native-American, Pacific Island, and African-American descent. The grant provides postdoc-mentor pairs in the United States and Canada with funding to enhance research productivity and career counseling resources—to help early-career scientists develop as independent investigators.

The Burroughs Wellcome Fund makes personal investments in biomedical research and careers. Enriching biomedical and medical research with new voices and faces is simply fundamental to the BWF ethos of supporting researchers who hold promise for creative, original, and unique solutions to biomedical problems.

When we invest in diversity in science, the perspectives and innovations in biomedical research will grow to match the diversity of the peoples and communities we seek to heal and serve—and the trainees we invest in today will form a diverse mentorship for trainees to come.

Postdoctoral Enrichment Program (PDEP)

The Burroughs Wellcome Fund wants to help advance the biomedical careers of underrepresented researchers from communities of color. We believe that racial, ethnic, and cultural diversity is essential to the process and advancement of scientific innovation, academic discourse, and public service.

BWF has created the PDEP to support early career scientists and engineers of Latino, Native-American, Pacific Island, and African-American descent, through training and mentoring support. PDEP awards a total of $60,000 over three years to postdoc-mentor pairs in biomedical or medical research, who are citizens of the United States or Canada, and hosted at a degree-granting institution in the United States or Canada.

Funding through PDEP supports participation in the following activities:

Opportunities for the PDEP postdoctoral fellow to enhance their research productivity. Examples include travel and attendance to workshops, courses, and trainings in new techniques; or meetings and events that launch new collaborations and knowledge transfer.

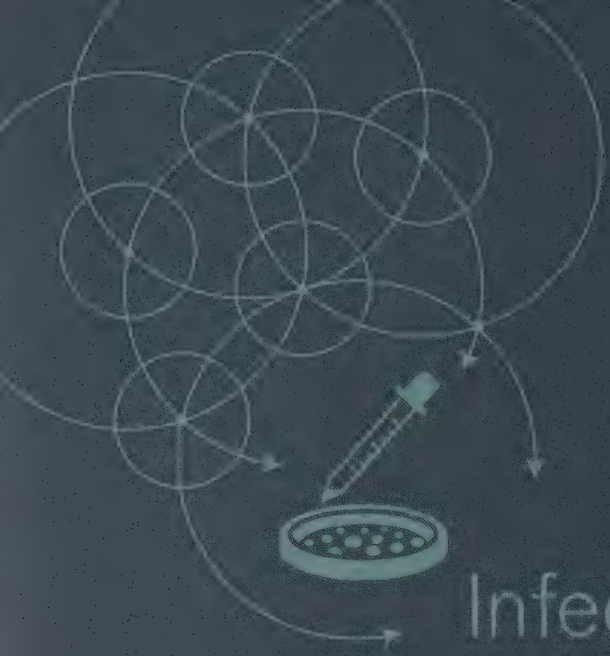
Opportunities for the PDEP mentor to develop and provide mentoring resources at their home institution, to increase the research productivity and long-term career success of the postdoctoral fellow. Examples include career guidance discussions, research management trainings, or professional development in grant writing, communication, and other skills demanded of future principle investigators.

Opportunities for the PDEP mentor to attend an annual meeting of PDEP mentors hosted by the Burroughs Wellcome Fund.

Opportunities for the PDEP postdoc-mentor pair to participate in a national peer network of underrepresented minority postdoctoral scholars to foster inter-institutional collaboration and greater community engagement.

We need to enrich biomedical and medical research with new voices and faces. But molding a diverse research community begins with mentoring diverse talents. The Burroughs Wellcome Fund wants to hear from underrepresented postdocs and mentors working at the frontlines of scientific discovery, and invites their application for the PDEP fellowship.

We want help in identifying these exciting scientists—and help in—mentoring diverse voices and face to advance biomedical research careers.



Infectious Diseases

ANSWERING PERSISTING QUESTIONS ON THE MECHANISMS AND NATURE OF HUMAN PATHOGENS

Investigations into infectious diseases have been in the Burroughs Wellcome bloodline for more than a century, ever since Henry Wellcome established his first tropical disease laboratory in the Sudan in 1902. Today, we still need new answers to fundamental questions on human infectious diseases.

The Burroughs Wellcome Fund has supported an Infectious Diseases program since 1981, when it began funding modern molecular approaches to understanding what have been called the great neglected diseases—malaria, the pathogenic fungi, and human parasites—that affect people in countries around the world. Then, as more institutions focused their attention to the prevention and treatment aspects of these diseases, BWF shifted its aim towards the research questions and angles still in dire need of investigation.

Since 2000, we have directed our resources through our Investigators in the Pathogenesis of Infectious Disease award. PATH encourages seasoned investigators at the assistant professor level to explore how specific pathogens—be they of bacterial, viral, fungal, eukaryotic, or other physiologies—interact with the human body to damage human health.

We want investigators to apply their own expertise to daring, multidisciplinary approaches, blending the biochemical, pharmacological, immunological, and molecular—and test creative ideas for answering the persisting questions on the mechanism and nature of human pathogens.

Investigators in the Pathogenesis of Infectious Disease (PATH)

How do human hosts handle infectious challenge? How can we shed light on the interplay between human and microbial biology, and explain how human health can be damaged by these encounters?

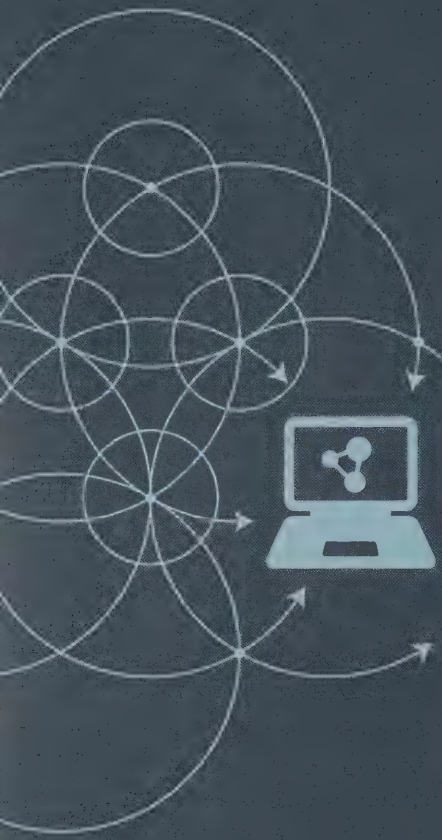
To answer these persisting questions, we need to be daring in our investigations into the mechanisms and nature of human pathogens.

Through our highly competitive PATH award, the Burroughs Wellcome Fund provides $500,000 over a period of five years for investigators at the assistant professor level to study pathogenesis.

PATH seeks investigators still early in their careers, who want to apply their own expertise to daring, multidisciplinary approaches blending the biochemical, pharmacological, immunological, and molecular.

We encourage proposals explaining on how specific pathogens—be they of bacterial, viral, fungal, eukaryotic, or other physiologies—interact with the human body to damage human health. What affects the outcomes of these encounters? How do colonization, infection, commensalism, and other relationships play out at levels, from molecular interactions to systemic ones?

BWF wants to give these accomplished investigators the freedom and flexibility to pursue daring avenues of inquiry and higher-risk research projects—and advance their careers as innovators in infectious disease research.



Interfaces in Science

INVESTING IN CROSS-TRAINED RESEARCHERS TO MAKE TRANSDISCIPLINARY BREAKTHROUGHS

The biological sciences are changing. Advances in genomics, quantitative structural biology, modeling of complex systems, and nanotechnology have opened up new realms of research—especially for ambitious investigators with backgrounds in physics, mathematics, computer science, and engineering who want to explore these new frontiers of biology. The promise of an exciting research career at this scientific interface is undeniable.

In recognition of the vital role such cross-trained researchers will play in furthering biomedical science, the Burroughs Wellcome Fund is making major investments in early-career researchers with undergraduate and graduate training in the physical, chemical, or computational sciences.

BWF has formed the Career Awards at the Scientific Interface award to catalyze the future careers of these creative, transdisciplinary talents. We believe that their unique perspective and expertise—and their career potential as faculty members and institutional leaders—will spark the exploration of toolkits, lenses, and machinery previously unimaginable in biomedical research.

From cell theory to DNA, great leaps in the biological sciences have always resulted from advances in how researchers detect, visualize, and manipulate the mechanisms of life.

We now stand at a new frontier where great changes in biological sciences await again. We are investing in cross-trained researchers who can navigate this interface of sciences—so they can make transdisciplinary breakthroughs for the benefit of human health.

Career Awards at the Scientific Interface (CASI)

Possibilities at the interface of biological, physical, computational, and engineering sciences have never been more exciting. Biomedical researchers are now blending technologies and inspirations transcending varied disciplines—giving us toolkits, lenses, and machinery previously unimaginable, and with the potential to advance human health.

The Burroughs Wellcome Fund wants to cultivate investigators who are pushing the frontiers of these exciting possibilities. To do so, we have formed the CASI program as a career catalyst for creative, cross-trained researchers in biomedicine and biophysics.

CASI awards are open to U.S. and Canadian citizens or permanent residents, as well as to U.S. temporary residents. The program provides $500,000 over five years—as well as job placement mentoring and professional networking resources—to help early-career researchers bridge their advanced postdoctoral training with their first three years of faculty service.

Through CASI, the Fund hopes to encourage scientists and engineers whose pre-doctoral work in chemical, physical, mathematical, and computational fields now prepare them to make grand leaps as postdoctoral and faculty researchers in biomedicine. Past awardees have explored programming paradigms for controlling robotic human limbs; imaging techniques to resolve intercellular dynamics or neural circuit function; biomagnetic matrices for stem cell cultures; chemical and evolutionary bases of circadian rhythms; spatiotemporal controls of embryonic tissue arrangement; and many other scientific interfaces.

We need more transdisciplinary talent who can break through these biomedical frontiers. The Burroughs Wellcome Fund is willing to invest in researchers whose beginnings today will flourish into creative, original, and unique solutions to biomedical problems throughout their career—and advance new possibilities in human health in return.



Population and Laboratory Based Sciences

A LENS UPON THE WHOLE OF HUMAN HEALTH

The biomedical sciences have traditionally advanced through discoveries and innovations at the lab bench, analyzing and unraveling the microscopic secrets of cellular function or molecular properties.

But today, the omnipresent reach and resources of the Information Age offer researchers a new lens with which to investigate human health—and bridge insights from controlled experiments at the lab bench with multivariate analyses of human populations and environments.

We need investigators who understand the levers of human health at all different scales. Researchers with this ability to consider tools and perspectives across scales of analyses will hold great advantage in tackling complex questions in environmental health, infectious diseases, chronic diseases, and other fronts.

Recognizing this advantage, the Burroughs Wellcome Fund has created the Institutional Program Unifying Population and Laboratory Based Sciences award. We want to encourage institutions to design new programs that train researchers in the ideas, techniques, and nuances of human health—both at the molecular scale and at the population scale.

We want to see more investigators in action who can bring together epidemiological, population genetic, geospatial, socioeconomic, and other kinds of "larger world" data, together with the mechanistic and experimental data gained at the lab bench. We need to cultivate these investigators who can look for biomedical solutions at multiple scales—investigators who can hold a lens upon the whole of human health.

Institutional Program Unifying Population and Laboratory Based Sciences (PUP)

The collaborative potential between lab bench science and public health research is tantalizing. Yet, institutions with investments in both capabilities sometimes underutilize this connection—leaving trainees and resources isolated in their respective silos.

At these institutions, we ought to be training research fluency from the micro to the macro. We should be unifying training resources in experimental, bench-based science with those in statistical, population-based science—to create a new cadre of broad-thinking investigators in environmental health, infectious diseases, chronic diseases, and other fronts.

In response to this need, the Burroughs Wellcome Fund created the PUP award. The PUP award provides $500,000 per year over five years to participating institutions, so they may establish training programs that bring together researchers in its school of medicine with those in its school or department of public health. Proposals may result in free-standing graduate programs or newly defined tracks within existing programs.

We want these programs to develop investigators versed in the ideas, techniques, and nuances of human health—both at the molecular scale and at the population scale. Past PUP-supported programs have followed the themes of data science, infectious disease and human-microbe interactions, or chronic diseases and wellness, but the possibilities are open to the creative vision of each institution. The curriculum could combine genomics with phenomics; address questions of population genetics; unite molecular and environmental epidemiology; or other conceptual syntheses. Partnerships with government, industry, and international organizations—especially those specializing in econometrics, demographics, applied mathematics, anthropology, and other fields not traditionally represented in biomedical research—are especially encouraged.



Regulatory Science

KEEPING GOVERNMENT REGULATIONS APACE WITH BIOMEDICAL ADVANCES

The Institute of Medicine defines "regulatory science" as the science of developing new tools, standards, and approaches to assess the safety, efficacy, quality, and performance of FDA-regulated products.

But regulatory science itself is an underserved area of research. National policies and regulations on new biomedical therapies should be supported by state-of-the-science data—yet given the pace of innovation and fiscal realities, agencies often lack the resources to fully address each and every emerging regulatory question.

Academic researchers can help agencies meet this demand. Recognizing the need and the opportunity, the Burroughs Wellcome Fund has made Regulatory Science among its major initiatives for funding.

Our Innovation in Regulatory Science Awards specifically funds academic investigators to assess the safety and efficacy of new therapies. We seek investigators who can leverage their multidisciplinary expertise and institutional resources towards new methodologies or approaches for vetting novel therapies—and produce timely knowledge and evidence that can directly assist U.S. and Canadian agencies in making regulatory decisions.

Regulations in biomedical therapies exist to balance public benefit with informed risk, and the demand for informed policymaking is as limitless as the frontier of medical therapies. To advance biomedical science and its promise for public good, the Burroughs Wellcome Fund will continue its encouragement of regulatory science—keeping government regulations apace with biomedical advances.

Innovations in Regulatory Science Award (IRSA)

Regulations in biomedical therapies exist to balance public benefit with informed risk. Appropriately, these national policies and regulations should be supported by state-of-the-science data and evidence.

But given the pace of innovation and fiscal realities, agencies often lack the resources to fully address each and every emerging regulatory question.

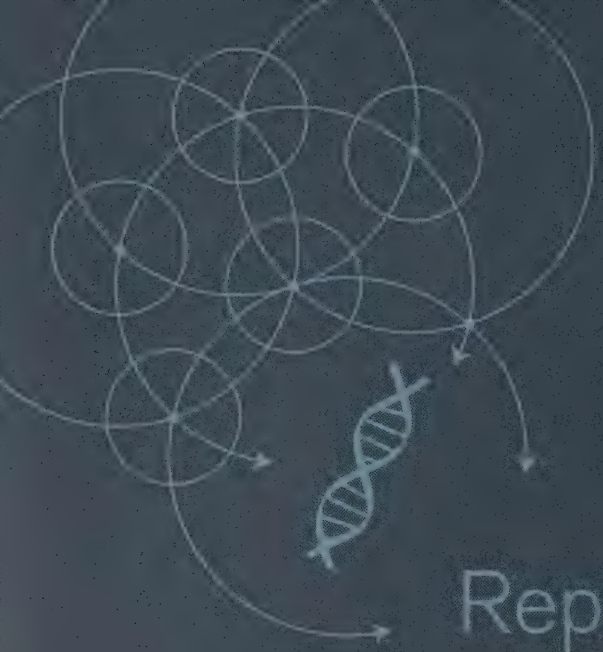
To help the Food and Drug Administration (FDA) and other U.S. and Canadian agencies close this gap, the Burroughs Wellcome Fund created the IRSA.

IRSA offers investigators up to $500,000 over five years to develop innovative and implementable solutions to regulatory questions. Applications are open to U.S. and Canadian citizens or permanent residents who have a faculty or adjunct faculty appointment at a North American degree-granting institution.

Applicants must explain how their research will have direct implications for regulatory policy—including the strategy and timeline for an agency to receive and consider the findings in their regulatory decision-making, as well as any potential pitfalls and the major validation steps required.

Beyond this, the possibilities are as limitless as the frontier of medical therapies. We invite collaborations and talents spanning mathematics, computer science, applied physics, medicine, engineering, toxicology, epidemiology, and systems pharmacology, and any other field spanning biomedical, biophysical, and biostatistical disciplines.

The Burroughs Wellcome Fund recognizes that regulatory science is an important, underserved area of research. We want to fund investigators who can anticipate and assess the future of health therapies and technologies—and strengthen the biomedical knowledge informing national regulatory decisions.



Reproductive Sciences

NOURISHING NEW RESEARCH INTO PARTURITION SCIENCE

The action of birth is shrouded in elegant complexity. It is the culmination of biochemical chain reactions, cellular differentiation, and other physiological, behavioral, and environmental mechanisms. Individually, they are measurable—together, much remains a mystery.

For years, the Burroughs Wellcome Fund has recognized reproductive sciences as an undervalued and underfunded area of research. Via our ad hoc grants, we provided early-career development funding for reproductive scientists and for OB/GYN physician-scientists.

In 2008, we began to formally invest in Reproductive Sciences as a major funding program. Today, our focus is to seek new ideas and partnerships to increase research into human parturition.

The program's first efforts were a series of biannual conferences on preterm birth research. Together with the March of Dimes, the Burroughs Wellcome Fund hosted the Biannual Symposium on Preventing Prematurity in 2008, 2010, 2012, and 2014.

Our Reproductive Sciences program is currently headlined by the Preterm Birth Initiative, an award aimed to increase our understanding of the mysteries and mechanisms of spontaneous preterm births—the leading cause of neonatal morbidity and mortality in children. Through these awards, BWF hopes to invigorate multidisciplinary collaborations and attract new investigators towards this area of research.

The triggers and factors of birth—however shrouded and complex—can impart mortal and lasting impacts on human life and well-being. The Burroughs Wellcome Fund intends to rally new talent and new approaches to explore these mysteries—nourishing new research into parturition science.

Preterm Birth Initiative

As part of our mission to support underserved fields of biomedical research, the Burroughs Wellcome Fund has created a grant to stimulate new insights into the mechanisms underlying spontaneous preterm birth.

Despite medical and technological advances, the rate of preterm births in the United States remains higher today than 20 years ago. Approximately 12 percent of births in the U.S. are considered preterm, and many physiological and behavioral health problems can be attributed to preterm delivery. Worse, preterm birth is currently the leading cause of neonatal morbidity and mortality in children.

For a medical phenomenon with such grave health and social consequences, little is known about preterm birth and its causes. The Burroughs Wellcome Fund intends to change this through its Preterm Birth Initiative.

Through this competitive award, BWF provides sole- or multi-investigator teams up to $600,000 over a four-year period. Principal investigators must be postdoctoral fellows in their final two years of training, or hold a faculty appointment at a degree-granting institution in the U.S. or Canada. Principal investigators must be citizens or permanent residents of the U.S. or Canada.

We want awarded teams to consider approaches in both basic and translational research, linking expertise within and outside of reproductive science. Molecular and computational approaches such genetics and genomics, immunology, microbiology, evolutionary biology, mathematics, engineering, and other sciences should be interwoven with insights from more traditional aspects of parturition research such as maternal-fetal medicine, obstetrics, and pediatrics.

Uncovering the mysteries of preterm births will advance reproductive science and impact human lives.



Science Education

EMPOWERING NORTH CAROLINA'S CHILDREN WITH SCIENTIFIC POTENTIAL

At the heart of all that we do to support biomedical science in the U.S. and Canada, one particular ideal drives our intentions: establish relationships and invest in the person.

It is this same philosophy that drives our decision to invest in science education in North Carolina.

When the Burroughs Wellcome Fund became a fully independent, philanthropic foundation in 1994, we established our headquarters in the Research Triangle of North Carolina—a powerhouse of scientific innovation in the Nation and the world. In making North Carolina our home state, we also recognized our newfound responsibility to invest in the people and community here.

Looking at the Fund's own strengths and looking at the Research Triangle's academic advantage—a microcosm of the disparity and potential present throughout the Tar Heel State—our imperative was clear. Our investment in scientific potential begins with our home state—and the scientific potential of North Carolina begins with its students and educators.

The Burroughs Wellcome Fund is proud to invest in Science Education as one of its major programs. Our goal is to establish relationships and invest in individual access to STEM education—science, technology, engineering, and mathematics—for communities in all 100 counties of North Carolina.

- Through our Student Science Enrichment Program, we are giving K-12 students in North Carolina added opportunities to experience critical thinking and the excitement of discovery—by investing more than $3 million annually for schools, organizations, and institutions to create and deliver science education activities outside the classroom.
- Through our Career Awards for Science and Mathematics Teachers, we look for proven public school teachers in North Carolina whose vision and effort for STEM access in their community serve as shining examples—and we further buoy that teacher's influence and impact with a $175,000 grant for salary, supplies, and professional development opportunities.
- Through our Promoting Innovation in Science and Mathematics awards, we want to give public school teachers with ingenious, classroom-ready ideas for stimulating STEM learning the chance to put their ideas into play—with one-time grants up to $4500 for materials, equipment, and training.
- Finally, we founded the North Carolina Science, Mathematics, and Technology Education Center (SMT). Since 2004, this non-profit organization has amplified our goal of advancing meaningful STEM opportunities in our classrooms—centralizing materials, equipment, and professional development resources for educators to easily access.

Empowering North Carolina's children with scientific potential—that is how we believe the Burroughs Wellcome Fund can best give back to our home state. We can harness the financial and material resources of our many established partnerships to improve public policy, teacher training, the informal science community, and scientist-educator collaborations. We can invest in individual educators whose natural talents can ignite that one student's curiosity and engage them in the scientific process.

If we are successful in these investments, we will have imparted an even greater gift for North Carolina: that our children, regardless of their future career path, have the science literacy to participate fully in civic life—and advance the potential of our state and our Nation.

Student Science Enrichment Program (SSEP)

As part of our Science Education initiative, the Burroughs Wellcome Fund wants to empower North Carolina's children with scientific potential. This means supporting the good work of talented, licensed educators in our K-12 schools—but it also means connecting our students with STEM enrichment opportunities outside the schoolyard.

Fortunately, some of the best universities, museums, and scientific organizations in the Nation are right in North Carolina—and they are ideal partners for SSEP.

The Burroughs Wellcome Fund created SSEP specifically to fund and support out-of-school STEM activities for K-12 students in North Carolina. SSEP awards provide up to $60,000 per year for three years for the creation and implementation of after-school, weekend, or summer science programs.

SSEP recipients are limited to non-profit institutions within North Carolina, such as colleges, museums, zoos, as well as public and private schools and community groups. Proposed programs must be designed in consideration of school curricula; implemented by well-trained staff; and structured with learning objectives and post-participation assessments.

To-date, BWF has awarded $31.5 million in SSEP funding, supporting STEM enrichment programs across all 100 counties in the state. In 2015 alone, funded proposals were received from UNC campuses, NC State, Duke, Wake Forest, and Elon; Cape Fear Community College Foundation; Burke County Public Schools; Marbles Kids Museum; Beaufort County Police Activities League; the Cherokee Boys Club; and many other Tribal, state, municipal, and community groups.

The State of North Carolina is blessed with natural beauty, technology hubs, and great universities—a veritable haven for experiential learning in STEM fields. We are pleased that the community leaders and STEM institutions of North Carolina are connecting our children with opportunities for STEM enrichment. Let your scientific playground be their classroom.

Career Awards for Science and Mathematics Teachers (CASMT)

North Carolina has one of the Nation's top scientific economies. And our continued competitiveness in research, medicine, technology, agriculture, and manufacturing relies on a workforce inspired and mentored by a special cadre of equally hardworking professionals: the science and math educators in our public schools.

In our support of science education in North Carolina and in all of our philanthropic activities, the Burroughs Wellcome Fund is guided by one particular ideal: establish relationships and invest in the person.

Just as we prioritize the development of individual scientists, we also created an award program that enhances the professional development of a promising science or mathematics educator to reward the best teachers to inspire our children in the classroom.

The Burroughs Wellcome Fund is proud to recognize through CASMT mid-career, K-12 teachers in North Carolina public schools who have proven their command of science or mathematics subject matters, demonstrated outstanding consistency and success in pedagogy, and are ready to emerge as mentors and innovators within the STEM community of our state.

These star teachers are awarded $175,000 over a period of five years to support their professional development, augment their equipment needs, and supplement their public salary. Awardees are also encouraged to reach beyond their school to build collegial learning communities within their district or region, and to develop strategies for their personal growth as teaching professionals and leaders of practice.

Our belief in "investing in the person" ensures that each award has life beyond any single grant. That creative, original, and unique ideas will continue to rise throughout an awardee's career—and in turn, strengthen the greater teaching community and empower the scientific potential of North Carolina's children—those are our ultimate reasons for investing in North Carolina's best science and math educators.

Promoting Innovation in Science and Mathematics (PRISM)

Here's a question for STEM teachers: "What great lesson plan could you finally try out if you had up to $4,500 in hand?"

If you're a professional educator licensed to teach in a North Carolina K-12 public school—and you have an ingenious, classroom-ready idea for inducing student learning in STEM—you just might be able to turn it into reality.

The Burroughs Wellcome Fund created the Promoting Innovation in Science and Mathematics (PRISM) grant to help North Carolina public school teachers create exciting, hands-on learning experiences in class or after school.

The award provides up to $3,000 for one year to cover the costs of equipment, materials, and supplies for instructional use—with an additional $1,500 if additional training is required to implement the new equipment or curriculum. The grant cannot go towards basic classroom technology equipment such as laptops and projectors, nor can it be used for field trips and guest speakers.

As part of our Science Education initiative, the Burroughs Wellcome Fund wants to empower North Carolina's children with scientific potential. We want to see more students engaged in innovative lessons and activities that spark their enthusiasm and guide them through critical inquiry—positive experiences that help instill a life-long hunger for science and math learning.

We know every brilliant, passionate teacher has a great idea saved away and our goal is to put your great STEM lesson plan into action.

Science and Philanthropy

The Burroughs Wellcome Fund makes noncompetitive grants for activities and career development opportunities for scientists that fall outside of our competitive award programs, but are closely related to our targeted areas.

We place special priority on working with nonprofit organizations, including government agencies, to leverage financial support for our targeted areas of research, and on encouraging other foundations to support biomedical research. Proposals should be submitted to BWF by email. Mailed requests should be no more than five pages.

Applicants should describe the focus of the activity, the expected outcomes, and the qualifications of the organization or individuals involved; provide certification of the sponsor's Internal Revenue Service tax-exempt status; and give the total budget for the activity, including any financial support obtained or promised. Proposals are given careful preliminary review, and those deemed appropriate are presented for consideration by BWF's Board of Directors.

Applications are accepted throughout the year.

Report on Finance

The Burroughs Wellcome Fund's investments totaled $716.7 million at August 31, 2015, the end of our fiscal year. BWF's primary financial goal is to pursue an investment strategy that will support annual spending needs and maintain a constant real level of assets over the long term. To achieve this goal, a high percentage of our investments are placed in strategies that derive the bulk of their returns from exposure to U.S. and international capital markets. Hence, fluctuations in BWF's investment results will be due largely to variability in capital market returns.

BWF's investment policies are developed with the recommendations and review of the Investment Committee, which is appointed by and reports to BWF's Board of Directors. The committee, which meets three times a year, has six voting members, including four representatives from outside BWF and two representatives of our board. The board's chair, BWF's president, and BWF's vice president for finance also serve on the committee as nonvoting members.

As part of BWF's investment strategy, we have established "allocation targets"—that is, percentages of our total assets to be invested in particular asset classes. Investment managers hired by BWF pursue more focused mandates within each sector. As of the end of the fiscal year, BWF's asset mix and market values were:

- U.S. large capitalization equity assets had a market value of $158.3 million. The sector's target allocation was 25 percent, and actual holdings stood at 22.1 percent.
- U.S. small capitalization equity assets had a market value of $118.9 million. The sector's target allocation was 18 percent, and actual holdings stood at 16.6 percent.
- International equity assets had a market value of $166.1 million. The sector's target allocation was 32 percent, and actual holdings stood at 23.2 percent.
- Fixed income assets had a market value of $132.2 million. The sector's target allocation was 22 percent, and actual holdings stood at 18.4 percent.
- Cash equivalent assets had a market value of $16.6 million. The sector's target allocation was 3 percent, and actual holdings stood at 2.3 percent.
- Alternative assets had a market value of $124.6 million. The sector did not have a target allocation, and actual holdings stood at 17.4 percent. The maximum permitted allocation to alternative assets stood at 20.0 percent at cost.

The total market value of BWF's investments decreased by $46.3 million, or 6.1 percent, from the end of the previous fiscal year. This decrease in assets was due mainly to weak returns for non-U.S. equities during the year. BWF's total investment return before investment management fees for the fiscal year was -0.2 percent. The U.S. large capitalization equity sector returned +4.6 percent, the U.S. small capitalization equity sector had a -2.0 percent result, the international equity sector lost -8.1 percent for the fiscal year, and fixed income produced a +1.3 percent result.

As of August 31, 2015, BWF employed 14 marketable securities investment managers. In the U.S. large capitalization equity sector, the managers were Brown Advisory; LSV Asset Management; and Martingale Asset Management. WCM Investment Management; Numeric Investors; and Nichols Asset Management managed U.S. small capitalization equities. Pacific Investment Management Company; Rimrock Capital Management; Babson Capital; and Smith Breeden Associates were the fixed income managers. Capital Guardian Trust Company; Northern Cross; Johnston Asset Management; and Hansberger Growth Investors managed international equities. BWF also held investments in seven venture capital funds: Intersouth Partners IV, V and VI, Spray Venture Funds I and II, Mission Ventures II and A. M. Pappas Life Science Ventures II. Barlow Partners and Winston Partners managed funds of equity oriented hedge funds. Blackrock Alternative Advisors managed a fund of absolute return strategies. Hamilton Lane Advisors managed two funds of private equity strategies. Finally, the Fund internally managed a diversified portfolio of mainly passive investments which was named the Tactical Portfolio. The Tactical Portfolio included investments in U.S. equities, international equities and global bonds.

Statements of Financial Position

August 31, 2015 and 2014

(All dollar amounts presented in thousands)

	2015	2014
ASSETS		
Cash and cash equivalents	$ 20,589	$ 13,652
Investments	734,294	758,950
Accrued interest and dividends receivable	1,534	1,754
Other assets	63	145
Federal excise tax receivable	210	–
Property and equipment, net	8,378	8,681
Total assets	$ 765,068	$ 783,182
LIABILITIES AND NET ASSETS		
Transactions payable, net	$ 40,377	$ 9,216
Accounts payable and other liabilities	1,033	774
Federal excise tax payable	–	758
Deferred federal excise taxes	1,326	2,359
Unpaid awards	102,718	86,042
Total liabilities	145,454	99,149
Unrestricted net assets	619,614	684,033
Total liabilities and net assets	$ 765,068	$ 783,182

Statements of Activities

August 31, 2015 and 2014
(All dollar amounts presented in thousands)

	2015	2014
REVENUES		
Interest and dividends, less investment expenses of $3,559 and $3,472 in 2015 and 2014, respectively	$ 8,970	$ 8,686
Net realized gain on sale of marketable securities	38,577	51,698
Total revenues and realized gains	$ 47,547	$ 60,384
EXPENSES		
Program services	$ 50,917	$ 33,193
Management and general	7,907	5,668
Total expenses before net unrealized appreciation and deferred federal excise tax	58,824	38,861
Net unrealized appreciation (depreciation) of investments, net of provision for deferred federal excise tax (benefit) of $(1,033) and $717 in 2015 and 2014, respectively	(53,142)	36,302
Change in net assets	(64,419)	57,825
Net assets at beginning of year	684,033	626,208
Net assets at end of year	$ 619,614	$ 684,033

Grants Index

BWF makes all grants to nonprofit organizations. For most of the programs, the name of the individual on whose behalf the grant is made is listed first, the title of the award recipient's project is listed second, and the name of the organization that received the money is listed third.

For programs that may have coaward recipients, the award recipients and their organizations are listed first, followed by the project title. For grants made directly to organizations and not on behalf of an individual, the name of the organization is listed first, followed by the title of the project or a brief description of the activity being supported.

In addition to making competitive awards, BWF makes noncompetitive grants—Ad Hocs—for activities that are closely related to our major focus areas. These grants are intended to enhance the general environment for research in the targeted areas.

For full audited financials visit bwfund.org/annualreport

Program Summary

August 31, 2015

	Awarded Net of Cancelled	Amount Paid	Percentage of Total Paid
BIOMEDICAL SCIENCES			
Career Awards in the Biomedical Sciences	$ 313,258	$ 1,256,051	
Career Awards in the Medical Sciences	10,859,219	6,809,336	
Research Travel Grant	285,850	298,350	
Ad Hoc	511,500	837,500	
Total	$ 11,969,827	$ 9,201,237	26.5%
DIVERSITY IN SCIENCE			
Postdoctoral Enrichment Program	$ 720,000	$ 440,000	
Ad Hoc	30,000	30,000	
Total	$ 750,000	$ 470,000	1.3%
INFECTIOUS DISEASES			
Career Guidance	$ 309,939	$ 309,939	
Investigators in Pathogenesis of Infectious Disease	6,874,370	4,558,037	
Ad Hoc	1,461,169	1,338,169	
Total	$ 8,645,478	$ 6,206,145	17.8%
INTERFACES IN SCIENCE			
Career Award at the Scientific Interface	$ 7,070,832	$ 4,818,272	
Interfaces Short Courses	200,000	100,000	
Ad Hoc	220,091	305,091	
Total	$ 7,490,923	$ 5,223,363	15.0%
POPULATION SCIENCES			
Institutional Program Unifying Population and Laboratory-Based Sciences	$ 10,000,000	$ 2,060,232	
Ad Hoc	2,500	2,500	
Total	$ 10,002,500	$ 2,062,732	5.9%

Program Summary

August 31, 2015

	Awarded Net of Cancelled	Amount Paid	Percentage of Total Paid
REGULATORY SCIENCE			
Innovation in Regulatory Science Awards	$ 3,456,432	$ 1,106,432	
Ad Hoc	210,000	210,000	
Total	$ 3,666,432	$ 1,316,432	3.8%
REPRODUCTIVE SCIENCES			
Preterm Birth Initiative	$ 3,000,000	$ 1,950,000	
Total	$ 3,000,000	$ 1,950,000	5.6%
SCIENCE AND PHILANTHROPY			
Science and Philanthropy	$ 1,260,600	$ 1,194,100	
Total	$ 1,260,600	$ 1,194,100	3.4%
SCIENCE EDUCATION			
Career Award for Science and Mathematics Teachers	$ 1,229,859	$ 634,859	
PRISM	–	2,993	
Student Science Enrichment Program	2,165,947	1,990,487	
Ad Hoc	5,238,542	3,793,620	
Total	$ 8,634,348	$ 6,421,960	18.5%
TRANSLATIONAL RESEARCH			
Clinical Scientist Award in Translational Research	$ 59,627	$ 734,627	
Total	$ 59,627	$ 734,627	2.1%
GRAND TOTAL	**$55,479,735**	**$34,780,596**	100%

Biomedical Sciences

Career Awards for Medical Scientists

Jennifer M Alexander-Brett, M.D., Ph.D.
Washington University
Postdoctoral Researcher
Targeting the Regulatory Mechanism of the Nucleokine IL-33

Daniel Evan Bauer, M.D., Ph.D.
Instructor
Harvard Medical School
Functional Characterization of Trait-Associated Enhancers

James Toliver Bennett, M.D., Ph.D.
Instructor
University of Washington
Impact of Somatic Mutations on Birth Defects

Shadmehr Demehri, M.D., Ph.D.
Assistant Professor
Harvard Medical School
Local and Systemic Effects of TSLP on Cancer

Charles Gawad, M.D.
Associate Member
University of Tennessee Health Science Center College of Medicine
Defining the Cellular and Genetic Origins of Childhood Acute Lymphoblastic Leukemia using Single-Cell Genomics

Matthew Blake Greenblatt, M.D., Ph.D.
Assistant Professor
Weill Cornell Medical College
Novel Mechanisms of Bone Formation

Rajan Jain, M.D.
Assistant Professor
University of Pennsylvania Perelman School of Medicine
Nuclear lamina-chromatin interactions are drivers of cardiac progenitor cell commitment

Matthew Stern Kayser, M.D., Ph.D.
Assistant Professor
University of Pennsylvania Perelman School of Medicine
A role for sleep in synapse development and susceptibility to neuropsychiatric disorders

Dan Avi Landau, M.D., Ph.D.
Assistant Professor
Weill Cornell Medical College
Genetic and Epigenetic Determinants of Chronic Lymphocytic Leukemia Evolution

Kory Joshua Lavine, M.D., Ph.D.
Assistant Professor
Washington University School of Medicine
Distinct Macrophage Lineages Govern Cardiac Recovery and Heart Failure Progression

Bluma J. Lesch, M.D., Ph.D.
Postdoctoral Researcher
Massachusetts Institute of Technology
Evolutionary and functional characterization of poised chromatin in the mammalian germ line

Joseph Douglas Mancias, M.D., Ph.D.
Instructor
Harvard Medical School
Role of ferritinophagy in iron metabolism and pancreatic cancer

Anna Victoria Rotberg Molofsky, M.D., Ph.D.
Assistant Adjunct Professor
University of California-San Francisco
Astrocyte-Encoded Regional cues in Developmental Synapse Formation

Sahar Nissim, M.D., Ph.D.
Instructor
Harvard Medical School
Discovery, Validation, and Characterization of Novel Familial Pancreatic Cancer Genes

Collaborative Research Travel Grant

Akinbode Adedeji
University of Kentucky

Emilio Alarcon
University of Ottawa

Craig Aspinwall
University of Arizona

Yimon Aye
Cornell University

Amy Barrios
University of Utah

Mark Bayfield
York University

Bruce Bowler
University of Montana

Craig Cameron
Pennsylvania State University

Veronica Campanucci
University of Saskatchewan

Alisa Clyne
Drexel University

Logan Donaldson
York University

Pamela Douglas
University of California-Los Angeles

Jeffrey Ehmsen
Johns Hopkins University School of Medicine

Jacob Friedman
University of Colorado-Denver

Adam Gracz
University of North Carolina-Chapel Hill

Jacqueline Henderson
Bradley University

Audrey Hendricks
University of Colorado-Denver

September Hesse
Emory University

Jane Hill
Dartmouth College

Cristian Huepe
Northwestern University

Elinor Karlsson
University of Massachusetts Medical School

Philip Kiser
Case Western Reserve University

Anil Kishen
University of Toronto

Simeon Kotchoni
Rutgers University

Francis Lin
University of Manitoba

Anthony Michael
University of Texas Southwestern Medical Center-Dallas

Bernard Omolo
University of South Carolina – Upstate

Emil Pai
University of Toronto

Stephanie Portet
University of Manitoba

Promod Pratap
University of North Carolina-Greensboro

Nir Qvit
Stanford University

Robert Rosenberg
Earlham College

Otto Stein
Montana State University

Hong-Shuo Sun
University of Toronto

Kazutaka Takahashi
University of Chicago

Joseph Tash
University of Kansas Medical Center

Geoffrey Tranmer
University of Manitoba

Xiaosong Wang
University of Waterloo

Xiaojing (John) Zhang
Dartmouth College

James E. Williams
Wake Forest University Health Sciences

Diversity in Science

Postdoctoral Enrichment Program

Ishmail Abdus-Saboor, Ph.D.
University of Pennsylvania
Determining the function of touch-sensing neurons in acute and chronic pain

Breann L. Brown, Ph.D.
Massachusetts Institute of Technology
Elucidating key protein-protein interactions that control substrate selection by the Lon AAA protease

Travis James Chapa, Ph.D.
University of California-Los Angeles School of Medicine
Determine the mechanism underlying gamma-herpesvirus late transcription initiation

Laura M. K. Dassama, Ph.D.
Northwestern University
Functional and structural characterization of a methanobactin transporter

David M. Garcia, Ph.D.
Stanford University School of Medicine
Heritable protein aggregation affecting RNA regulation

Tamia Alisha Harris-Tryon, M.D., Ph.D.
University of Texas Southwestern Medical Center-Dallas
Microbiota-immune system interactions in the skin

Michael John Mitchell, Ph.D.
Massachusetts Institute of Technology
A nanoparticle platform for siRNA delivery to bone marrow endothelium to disrupt bone metastasis formation

Samira Musah, Ph.D.
Harvard University
Directed differentiation of human iPS cells to reconstitute kidney glomerular function *in vitro*

Thomas Pohl, Ph.D.
Princeton University
Role of G4 sequences in rDNA transcription and ribosome biogenesis and/or function

Elenoe Cheddena Smith, Ph.D.
Boston Children's Hospital
Harvard Medical School
DNA elements within BCL11a and its target sequences in hemoglobin switching

David Ashley Van Valen, M.D., Ph.D.
Stanford University
Understanding host-virus interactions in bacterial systems at the single cell level

Career Guidance

Career Guidance for Trainees

Icahn School of Medicine at Mount Sinai
Future leaders in science education and communication training program

Johns Hopkins University School of Medicine
How to be an intern: prepping for life outside academia

University of Alabama-Birmingham
UAB EXPERIENtial Learning for Career Enhancement in the Sciences (EXPERIENCES) Program

University of California-San Francisco
A career readiness framework for research trainees

University of California-San Francisco
Business concepts for biomedical scientists

University of Michigan Medical School
Mapping pathways for professional success in graduate and postdoctoral training

Vanderbilt University
Entrepreneurship and business training for scientists

Infectious Diseases

Investigators in the Pathogenesis of Infectious Disease

Jesse D. Bloom, Ph.D.
University of Washington
High-throughput profiling of humoral immune selection

Igor E. Brodsky, Ph.D.
University of Pennsylvania
The role of chemokine-chemokine receptor interactions in anti-bacterial protective immunity

Ken Cadwell, Ph.D.
New York University School of Medicine
Gene-microbe interactions in inflammatory bowel disease

Matthew James Evans, Ph.D.
Icahn School of Medicine at Mount Sinai
Determinants of hepatitis C virus persistence

Andrew L. Goodman, Ph.D.
Yale University
Understanding pathogen-commensal interaction in the earliest stages of infection

Elissa A Hallem, Ph.D.
University of California-Los Angeles
Thermosensation in skin-penetrating parasitic nematodes

Sun Hur, Ph.D.
Harvard Medical School
Mechanism for dsRNA-dependent and -independent activation of the antiviral gene, PKR

Rahul Manu Kohli, M.D., Ph.D.
University of Pennsylvania
Tuning evolution and antibiotic resistance by modulating the SOS pathway

Li-Jun Ma, Ph.D.
University of Massachusetts-Amherst
Supernumerary chromosomes and pathogenicity of opportunistic fungal infections

Luciano A Marraffini, Ph.D.
Rockefeller University
Effect of type III CRISPR-Cas immunity on phage-mediated staphylococcal pathogenesis

Daniel Mucida, Ph.D.
Rockefeller University
Intestinal surveillance by intraepithelial lymphocytes

Nan Yan, D.Phil.
University of Texas Southwestern Medical Center-Dallas
STING activation at the nexus of microbial infection and host innate immunity

Interfaces in Science

Career Awards at the Scientific Interface

Lacramioara Bintu, Ph.D.
California Institute of Technology
Dynamics of epigenetic regulation at the single-cell level

Alistair Nicol Boettiger, Ph.D.
Harvard University
Direct imaging of the nanoscale structural organization of chromatin as shaped by developmental signals

Julijana Gjorgjieva, Ph.D.
Brandeis University
Deriving network behavior from single neuron biophysics, synaptic plasticity and neuromodulation

Ann M Hermundstad, Ph.D.
University of Pennsylvania
Beyond independence: emergent neural function and the natural world

Markita Patricia Landry, Ph.D.
Massachusetts Institute of Technology
Synthetic antibodies for real-time monitoring of cellular protein imbalances and protein misfolding

Monica M. Laronda, Ph.D.
Northwestern University
Engineering an artificial ovary to restore fertility and endocrine function in cancer survivors

Chen Li, Ph.D.
University of California-Berkeley
The terradynamics of biological movement in complex terrain

Francisco Eduardo Robles, Ph.D.
Duke University
Molecular imaging based on the linear and nonlinear refractive index for biomedical applications

Allyson E. Sgro, Ph.D.
Princeton University
Greater as a whole: bridging intracellular signaling and population behaviors in collective systems

Jeffrey Neil Stirman, Ph.D.
University of North Carolina-Chapel Hill
Trepan2p Microscopy: panoramic brain imaging with cellular resolution for systems neuroscience

Vivek Venkatachalam, Ph.D.
Harvard University
Lifetime behavior and neurophysiology in C. elegans

Christina May Woo, Ph.D.
Stanford University
Expansion of the druggable proteome: understanding proteome-wide small molecule—protein interactions

Regulatory Science

Innovation in Regulatory Science

Patrick Allard, Ph.D.
University of California-Los Angeles
Application of novel approaches towards germline toxicity assessment

Darla M. Goeres, Ph.D.
Montana State University
Methods to assess biofilm prevention on medical devices

Erich S. Huang, M.D., Ph.D.
Duke University School of Medicine
Provenance Laboratory for Auditable Regulatory Science (POLARIS): auditable antibiotic development with the clinical trials transformation initiative

Rustem F. Ismagilov, Ph.D.
California Institute of Technology
A microfluidic diagnostic platform to advance regulatory science

Sara Lynn Van Driest, M.D., Ph.D.
Vanderbilt University School of Medicine
Leveraging big data for small patients

Joseph C. Wu, M.D., Ph.D.
Stanford University School of Medicine
Accelerating drug discovery with iPS cells and small molecule screen

Science Education

Career Awards for Science and Mathematics Teachers

Tomika R. Altman-Lewis
Fayetteville Street Elementary School
Durham Public Schools

Katie Mauldin Matthews
Valle Crucis School
Watauga County Schools

Jennifer Michelle McCarthy
Jay M. Robinson High School
Cabarrus County Schools

Jodi S. Riedel
Wakefield High School
Wake County Public Schools

John D. Scarfpin
Havelock High School
Craven County Schools

Rolie 'Andi' Adrienne Webb
Alderman Road Elementary
Cumberland County Schools

Ad Hoc

Biomedical Sciences

CAREER DEVELOPMENT OF POSTDOCTORAL SCIENTISTS

American Society for Cell Biology
Support for the Minorities Affairs Committee activities at the annual meeting

American Society for Cell Biology
Support for Women in Cell Biology career discussion and mentoring roundtables at the annual meeting

Association for Clinical and Translational Science
Support for trainee travel to the 2015 Translational Science meeting

Cold Spring Harbor Laboratory
Support for the CSHL imaging in Neuroscience summer course

Society for Neuroscience
Support for the postdoctoral travel awards to the annual meeting

University of Toronto
Support for the University of Toronto Molecular Genetics Career Development Alumni Symposium

Washington University
Support for the 2015 M.D.-Ph.D. Association annual meeting

MEDICAL SCIENCES

American Physician Scientists Association
Support for the annual meeting

Baylor College of Medicine
Support for the Alexander R. Matzuk 2015-2016 speaker series

Tides Foundation
Support for the Gairdner National Program (2012-2014)

University of North Carolina-Chapel Hill
Support for the 5th annual Oliver Smithies Nobel Symposium and Postdoctoral Research Forum

University of North Carolina-Chapel Hill Lineberger Comprehensive Cancer Center
Support for the 39th Annual UNC Lineberger Comprehensive Cancer Center Symposium: Personalized medicine, the cancer genome atlas and the future of cancer care

University of Toronto
Support for the 2014 annual general meeting of CITAC-ACCFC

REPRODUCTIVE SCIENCE

American Society of Andrology
Support for travel awards to junior investigators to the North American Testis Workshop

Marine Biological Laboratory
Support for the 2015 FIR symposium

Society for the Study of Reproduction
Support for SSR's Diversity Committee activities at the annual meeting

Society for the Study of Reproduction
Support for SSR's 48th annual meeting

The Endocrine Society
Support of the annual ENDO 2015 meeting

Washington University
Support for the annual RSDP retreat and scholars dinner

Washington University
Support for RSDP junior faculty scholar Patricia T. Jimenez, M.D. (one year)

Washington University
Support for RSDP scholars research related expenses

Washington University
Support for the PREBIC satellite symposium: Microbial Etiologies of Preterm Birth

Washington University School of Medicine
Support for the 2015-2016 OB/GYN research training fellows

Diversity in Science

Society for the Advancement of Chicanos and Native Americans in Science
General support for 2015-2016

University of North Carolina-Chapel Hill
Expansion of Chancellor's Science Scholars Program

Infectious Diseases

CAREER DEVELOPMENT

Grants Managers Network
General support

University of California-San Francisco
Support for travel and meeting costs that would convene the authors and several other potential influencers of myIDP

GENERAL

Albert Einstein College of Medicine of Yeshiva University
Support for Investigator of the Pathogenesis of Infectious Disease awardee, Ben Chen, to present a seminar at the Albert Einstein College of Medicine

American Society for Microbiology
Support for the American Society for Microbiology sponsored Cell-Cell Communication in Bacteria meeting

American Society for Microbiology
Support for the American Society for Microbiology's graduate student and postdoctoral scientist programs – ASM Kadner Institute for Graduate Students and Postdoctoral Scientists in Preparation for Careers in Microbiology and the ASM Scientific Writing course

American Society for Microbiology
Support for the American Society for Microbiology Conference on Prokaryotic Cell Biology and Development

American Society for Microbiology
Support for the American Society for Microbiology Biofilms conference

American Society for Microbiology
Support for the American Society for Microbiology 15th International Conference on Pseudomonas

American Society of Tropical Medicine and Hygiene
Support for the annual meeting

American Society of Tropical Medicine and Hygiene
Support for the American Committee of Molecular, Cellular and Immunoparasitology scientific program at the annual meeting

Association for Women in Science
Support for the renewal of Burroughs Wellcome Fund's Association for Women in Science partnership dues

Bio Ventures for Global Health
Support for The Global Action Fund for Fungal Infections international stakeholders' meeting

Boston Children's Hospital Harvard Medical School
Support for the scientific symposium "From the Bursa of Fabricus to Tissue Resident Macrophages—Immune System Control of Homeostasis and Disease"

Cornell University College of Veterinary Medicine
Support for Cornell University's role in running the Becoming Faculty workshop at the 2015 NIH-Merial Veterinary Scholars conference

Federation of American Societies for Experimental Biology
Support for the Federation of American Societies for Experimental Biology (FASEB) Microbial Pathogenesis: Mechanisms of Infectious Disease meeting

Genetics Society of America
Support for the 28th Fungal Genetics Conference

Gordon Research Conferences
Support for the Gordon Research Conference on Tropical Infectious Diseases

Gordon Research Conferences
Support for the 2015 Gordon Research Conference on Immunology of Fungal Infections

Gordon Research Conferences
Support for the 2015 Malaria Gordon Conference Translating Malaria Research to the Field held July 26-31, 2015 in Girona, Spain

Gordon Research Conferences
Support for the Gordon Research Conference titled "Viruses and Cells" held from June 21-26, 2015 in Girona, Spain

Gordon Research Conferences
Support for the 2016 Gordon Research Conference on the Biology of Spirochetes to be held in Ventura, California January 10-15, 2016 and for the 2016 Gordon Research Seminar on the Biology of Spirochetes on January 9-10, 2016

Harvard School of Public Health
Support for a meeting of the Fortune and Flynn laboratories

Icahn School of Medicine at Mount Sinai
Support for the scientific symposium "From the Bursa of Fabricus to Tissue Resident Macrophages—Immune System Control of Homeostasis and Disease"

Institut Pasteur
Support for the 6th Federation of European Biochemical Societies (FEBS) Advanced Lecture Course "Human fungal pathogens(HFP): molecular mechanisms of host-pathogen interactions and virulence"

Marine Biological Laboratory
Support for the Molecular Mycology: Current Approaches to Fungal Pathogenesis (MOMY) for three years 2015-2017

Marine Biological Laboratory
Support for an organizational meeting prior to the launching of the first year of a new MBL course titled Frontiers in Host-Microbe Interactions

Marine Biological Laboratory
Support for the Biology of Parasitism (BoP) course at the Marine Biological Laboratory over a four-year period, 2015-2019

New York University School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Manuela Raffatellu, to present a seminar

Northwestern University Feinberg School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Sean Whelan, to present a seminar

Oregon Health and Science University Foundation
Support for a Diversity and Inclusion Event to be held at the 40th Annual International Herpesvirus Workshop

Pennsylvania State University College of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, David Artis, to present a seminar

Texas A&M University
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Suzanne Noble, M.D., Ph.D. to present a seminar

University of California-Berkeley
Support for the scientific symposium "From the Bursa of Fabricus to Tissue Resident Macrophages—Immune System Control of Homeostasis and Disease"

University of California-Davis
Support for the 2015 Merial-NIH National Veterinary Scholar Symposium held at the University of California-Davis

University of California-Davis School of Veterinary Medicine
Support for the Burroughs Wellcome Fund Becoming Faculty workshop held in conjunction with the National Veterinary Scholar Symposium

University of California-Irvine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, David Weiss Emory University, to present a seminar

University of California-San Diego
Support for the Burroughs Wellcome Travel Award for postdoc exchange involving research across the spectrum of roundworm and flatworm biology and pathology

University of California-San Diego
Support for the 'Helminth Parasite Molecular Toolbox Travel Awards' in 2015-16

University of California-San Francisco
Support for the 18th Bay Area Microbial Pathogenesis Symposium

University of California-San Francisco
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Tobias Hohl, to present a seminar

University of California-San Francisco
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Russell Vance, to present a seminar

University of California-San Francisco
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Raphael Valdivia, to present a seminar

University of California-San Francisco
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Sarah Fortune to present a seminar

University of Chicago
Support for PATH Advisory Committee Chair, John Boothroyd, to present at the Ricketts Symposium

University of Colorado at Denver and Health Sciences Center Fitzsimons Campus
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Manuela Raffatellu, to present a seminar

University of Colorado-Denver
Support for the BWF/HHMI partnership veterinary student training program fellow Hannah Laurence

University of Illinois-Chicago
Support for Kelly Doran, BWF Career Award in the Biomedical Sciences, to present a seminar

University of Minnesota College of Veterinary Medicine
Support for the BWF/HHMI partnership veterinary student training program fellow Patrice M. Witschen, University of Minnesota College of Veterinary Medicine

University of North Carolina-Chapel Hill
Support for Dr. Terry Dermody, former Investigator in the Pathogenesis of Infectious Disease Advisory Committee chair, to present a seminar at the University of North Carolina-Chapel Hill

University of North Carolina-Chapel Hill
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Manuela Raffatellu, to present a seminar

University of North Carolina-Chapel Hill
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Rob Kalejta, to present a seminar

University of North Carolina-Chapel Hill
Support for Investigator in the Pathogenesis of Infectious Disease awardee, David Aronoff, to present a seminar

University of North Carolina-Chapel Hill
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Sing Sing Way, to present a seminar

University of Notre Dame
Support for the Midwest Neglected Infectious Diseases Meeting

University of Notre Dame
Support for a workshop on "Lipids in the Era of Malaria Elimination" held at the Marine Biological Laboratory at Woods Hole, Mass.

University of Pennsylvania School of Veterinary Medicine
Support for the Biannual Toxoplasma meeting

University of Pennsylvania School of Veterinary Medicine
Support for the scientific symposium "From the Bursa of Fabricus to Tissue Resident Macrophages—Immune System Control of Homeostasis and Disease"

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Sing Sing Way, to present a seminar at the University of Texas Southwestern Medical Center-Dallas

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Heran Darwin, to present a seminar at the University of Texas Southwestern Medical Center-Dallas

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, David Weiss, to present a seminar at the University of Texas

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Michael Fischbach, to present a seminar at the University of Texas Southwestern Medical Center-Dallas

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Sara Cherry, to present a seminar at the University of Texas

University of Texas Southwestern Medical Center-Dallas
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Eric Skaar, Ph.D. of Vanderbilt University to present a seminar at the University of Texas, Austin in December 2015

University of Washington
Support for the scientific symposium "From the Bursa of Fabricus to Tissue Resident Macrophages—Immune System Control of Homeostasis and Disease"

Vanderbilt University
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Kim Orth, to present a seminar

Vanderbilt University Medical Center
Support for Investigator in the Pathogenesis of Infectious Disease awardee, SingSing Way, to present a seminar

Vanderbilt University Medical Center
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Ben tenOever, to present a seminar

Vanderbilt University School of Medicine
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Manuela Raffatellu, to present a seminar

Yale University
Support for Investigator in the Pathogenesis of Infectious Disease awardee, Julie Bubeck Wardenburg, to present a seminar

Interfaces in Science

Aegean Conference Ltd.
Support for the 11th International Conference on Pathways, Networks, and Systems sponsored by Aegean Conferences

American Institute of Chemical Engineers
Support for the Regenerative Engineering Society to organize the first national meeting

American Society for Cell Biology
Support for an Interdisciplinary Session at the 2014 ASCB/International Federation for Cell Biology (IFCB) Meeting

Aspen Center for Physics
Support for conference on "Populations, Evolution, and Physics"

Baylor College of Medicine
Support for travel to Dr. Hernan Garcia's lab at the University of California-Berkeley in 2015 to collaborate on labeling and imaging methods for fixed embryos

Biophysical Society
Support for the 59th Annual Meeting of the Biophysical Society in Baltimore, Maryland in 2015

Brown University
Support for travel for awardee or an associate to Buck Institute for Research on Aging to attend a seminar on detecting accelerated regulatory evolution in pathways

Buck Institute for Research on Aging
Support for travel to Brown University to attend a seminar on detecting accelerated regulatory evolution in pathways

Codman Academy
General support

Computational and Systems Neuroscience (Cosyne)
Support for the 2015 Annual Cosyne Meeting

Emory University
Support for travel to the 24th Annual Computational Neuroscience Meeting

Georgia Institute of Technology
Support a visit for Catherine Penington from Queensland University of Technology in Brisbane to initiate a new project in February 2015

Georgia Institute of Technology
Support for a rapid response workshop meant to link modelers actively involved in considering Ebola virus disease dynamics with public health professional and policy makers

Georgia Institute of Technology
Support for the 2015 Southeast Regional meeting of the Society for Integrative and Comparative Biology (rSICB) at Georgia Tech in Atlanta, Georgia on October 12, 2015

Harvard Medical School
Support for travel funds to bring Hana El-Samad of University of California-San Francisco to attend a meeting named "Gene Regulation by Numbers" with several CASI awardees at the Radcliffe Institute for Advance Study at Harvard University June 3-5, 2015

International Society for Cellular Therapy
Support for the 2016 Annual Meeting in Singapore for the International Society for Cellular Therapy (ISCT)

Marine Biological Laboratory
Support for the Marine Biological Laboratory to supplement carryover funds from the Physiology Course Alumni Fund and to expand the fund to allow up to $5,000 in Course Director discretionary expenditures

Massachusetts Institute of Technology
Support to assist with expenses to attend the Advances in Genome Biology and Technology (AGBT) meeting

National Medical Fellowships Inc.
Support for National Medical Fellowships "Mentoring Physician Scientists in Under-represented Communities Symposium"

New York Stem Cell Foundation
Support for an internship for an African American college student who will participate in the 10-week internship program, New York Stem Cell Foundation University, at the New York Stem Cell Foundation Laboratory in the summer of 2015

Society for Biomaterials
Support for the Society for Biomaterials' 2015 Annual Meeting and Exposition

Stanford University
Support for two trips to the University of California-Santa Barbara to jump start a new collaboration with Kevin Lafferty to initiate a new path to study a series of parasitic flatworms

Statistical and Applied Mathematical Institute (SAMSI)
Support for the Statistical and Applied Mathematical Institute to conduct a two-day high-level worskhop aimed at identifying high-priority areas for future research to be held in late 2014 or early 2015

University of California-Berkeley
Support for travel to Boston to attend a meeting named "Gene Regulation by the Numbers" with other CASI awardees at the Radcliffe Institute for Advance Study at Harvard University

University of California-Los Angeles
Support for travel between Boston and Los Angeles for Ariana Anderson and Brian Alexander to identify how the prevalence and incidence information provided in the SEER database may inform and improve clinical decision making

University of California-San Diego
Support for collaborative activity, including travel, with CASI awardee Arjun Raj of University of Pennsylvania

University of California-San Diego
Support for travel funds to attend and speak at the 11th International Conference on Pathways, Networks, and Systems

University of California-San Diego
Support for travel, registration and hotel expenses to give a talk at the American Physical Society Meeting

University of California-Santa Barbara
Support for travel to the laboratory of Brenton Hoffman, an Assistant Professor in the Department of Biomedical Engineering at Duke University, to initiate a new collaboration to study force transmission pathways in protein networks, cells and tissues

University of Illinois-Urbana-Champaign
Support for two trips to the University of California-Santa Barbara to jump start a new collaboration with Kevin Lafferty to initiate a new path to study a series of parasitic flatworms

University of Missouri-Columbia
Support for three graduate students from Gavin King's group to attend the Biophysical Annual Meeting in Baltimore, February 7-11, 2015

University of Pennsylvania
Support for travel to Boston to attend a meeting named "Gene Regulation by the Numbers" with other CASI awardees to be held at the Radcliffe Institute for Advance Study at Harvard University June 3-5, 2015

University of Texas-Austin
Support for travel funds to attend and speak at the Protein Electrostatics meeting at the Telluride Research Center, Telluride, Colorado July 6-10, 2015

University of Texas-Dallas
Support for travel funds to bring Professor Todd Coleman from the University of California-San Diego to discuss applications of his flexible electronics research

Washington University School of Medicine
Support for funds to travel to visit Ramkumar Sabesan at University of California-Berkeley to help advance the science involving retinas

Population and Laboratory Based Sciences

POPULATION AND LABORATORY BASED SCIENCES

Society of Toxicology
Support for travel awards for graduate students for the 54th Society of Toxicology Annual Meeting March 22-26, 2015 San Diego, California

Regulatory Science

REGULATORY SCIENCE

Critical Path Institute
Support for the First Annual Neonatal Scientific Workshop October 28 and 29, 2014 at FDA White Oak Campus, Great Room, Silver Spring, Maryland

Critical Path Institute
Support for the International Neonatal Consortium at the European Medical Agency May 18-19, 2015

Friends of Cancer Research
Support for the forum: "Enhancing Patient Input and Regulatory Innovation. A Friends of Cancer Research roundtable with: Dr. Robert Califf, Deputy Commissioner for Medical Products and Tobacco, U.S. Food and Drug Administration"

Health Research Alliance, Inc. (HRA)
Support for HRA membership renewal in 2015

Health Research Alliance, Inc. (HRA)
Support for Health Research Alliance's New Frontiers in Science Distinguished Lectureship Program at the Federal Drug Administration for 2015

International Society for Stem Cell Research
Support for the Plenary session, Disease Modeling, at the International Society for Stem Cell Research's 13th Annual Meeting in Stockholm, June 2015

National Academy of Sciences
Support for the Forum on Drug Discovery, Development, and Translation from January 1 to December 31, 2015

National Academy of Sciences/ Institute of Medicine
Additional Support for Strategies for Responsible Sharing of Clinical Trial Data: Guiding Principles and a Framework for Implementation

National Academy of Sciences/ Institute of Medicine
Support for the Institute of Medicine (IOM) workshop, Advancing the Discipline of Regulatory Science for Medical Product Development: An Update on Progress and a Forward-Looking Agenda, to be held October 20-21, 2015

National Coalition Against Domestic Violence
Gift on behalf of Dr. Sandra Allerheiligen

Termis-Americas
Support for the current TERMIS symposium program, including symposium costs, travel awards and programmatic expenses

Science and Philanthropy

COMMUNICATIONS/ SCIENCE WRITING

American Association for the Advancement of Science
Support for the 2015 AAAS Mass Media Fellows

National Public Radio
Support for Science Desk programming

National Research Council/National Academy of Sciences
Support for NRC's efforts to launch a study of science communication

Open Notebook
Support for The Open Notebook (TON) Fellowship

Science Spark
Support for the Science of Cheerleading ebook

University of California Museum of Paleontology
Support for the Coalition for the Public Understanding of Science (COPUS) for 2015

GENERAL PHILANTHROPY

Council on Foundations
General support for 2015

Foundation Center
Support for 2014

Marine Biological Laboratory
Endowment to support MBL's advanced education program

Marine Biological Laboratory
Support for the Catherine N. Norton Endowed Fellowship, directed by BWF Board Member, John Burris, Ph.D.

National Academy of Sciences
Support for an initiative to develop a comprehensive understanding of the current state of human gene-editing technology and the implications of the technology

National Academy of Sciences/ Institute of Medicine
Support for the publication of the history of the National Academy of Sciences

North Carolina Community Foundation/ North Carolina Network of Grantmakers
Support for 2015-16

Pituitary Network Association
Support for the Pituitary Network Association's work to create a section of the website on "Quality of Life after Pituitary Surgery"

Queen's University
Support for the annual Conference on Statistics, Science and Public Policy

SCIENCE POLICY

National Academies
Study on the publication of dual use research of concern

Science Education

GENERAL EDUCATION GRANT

Grantmakers for Education
Support for 2015

North Carolina School Public Relations Association
Support for a project to build increased support for district-led public schools

North Carolina Society of Hispanic Professionals
Support for the 2015 North Carolina Society of Hispanic Professionals' youth education programs

SCIENCE EDUCATION

Buncombe County Schools
Accelerating STEM Education and Workforce Innovation in Buncombe County

Central Park School for Children
Support for professional development activities

Cumberland County Board of Education
Cumberland County Schools' Singapore Math Pilot Project at Gallberry Farm Elementary School

East Forsyth High School
Support for professional development activities

Eastfield Global Magnet School
Support for professional development activities

Greene County Schools
Support the building of STEM capacity and scale in rural eastern North Carolina

Grimsley High School
Support for professional development activities

Isothermal Community College
The Isothermal STEM Summit 2015: The Economic Advantage of Advancing STEM Education

John R. Kernodle, Jr. Middle School
Support for professional development activities

MCNC
Support for the NCREN Community Day Celebration 2015

Murphey Traditional Academy
The Blended Classroom

National Association of Academies of Science
Support for the "Belong to Science for a Week" program for pre-college research students

North Carolina Association for Biomedical Research
Support for Bridging the Gap conference

North Carolina Central University Foundation
Support for the D. Carr Thompson Endowed Scholarship Fund

North Carolina Department of Public Instruction
Support for the 2016-2018 Teacher of the Year Program

North Carolina School of Science and Mathematics Foundation
Support for the Endowment for Student Research, Mentorship, and Innovation, as well as support for the Extended STEM Educational Opportunities Endowment

North Carolina School of Science and Mathematics Foundation
Support for travel of North Carolina Student Academy of Science winners to the American Junior Academy of Science/ American Association for the Advancement of Science annual meeting

North Carolina Science Teachers Association
Support for the NCSTA Professional Development Institute

North Carolina Science Teachers Association
Using STEM to Master Literacy

North Carolina's Northeast Economic Development Foundation
NC STEM Ecosystem: Driving Our Future

Polk County High School
Support for professional development activities

Professional Engineers of North Carolina Education Foundation
Support for the Future City Competition, North Carolina Region

Society for Science & the Public
Support for the planning of the Climate Change Competition for college students

University of North Carolina-Chapel Hill
North Carolina DNA Day

University of North Carolina-Chapel Hill Foundation
Support for the North Carolina Science Festival Endowment

University of North Carolina-Chapel Hill School of Education
Continued support for the CASMT Evaluation

SCIENCE, MATH, AND TECHNOLOGY SCIENCE CHAMPION

EducationNC
General support for 2015-16

James B. Hunt Jr. Institute for Educational Leadership and Policy
STEM College and Career Readiness Standards and Assessments

North Carolina Alliance for School Leadership Development
Emerging Trends Network for North Carolina School Districts

North Carolina Alliance for School Leadership Development
Digital Leadership for Superintendents

North Carolina Alliance for School Leadership Development
Support for the Science Materials and Professional Development Center

North Carolina Chamber Foundation
Support for the North Carolina Conference on Education

North Carolina New Schools Project
Scaling STEM: Strategies that Engage Minds

North Carolina Science Fair Foundation
Support for the North Carolina Science and Engineering Fair

Public School Forum of North Carolina
Support for the Beijing (China) Youth Science Creation Competition

Region K Community Assistance Corporation
Kerr-Tar Regional STEM Education Summit

Smithsonian Science Education Center
Support as the non-federal match for the continuation proposal: The LASER Model: A Systemic and Sustainable Apporach for Achieving High Standards in Science Education

Southeast Education Alliance Foundation, Inc.
1st Annual K-12 STEM Education Conference

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The Burroughs Wellcome Fund uses advisory committees for each competitive award program to review grant applications and make recommendations to BWF's Board of Directors, which makes the final decisions. We select members of these committees for their scientific and educational expertise in the program areas. In addition, BWF uses a financial advisory committee to help in developing and reviewing the BWF's investment policies. This committee is appointed by and reports to the Board of Directors.

Biomedical Sciences

CAREER AWARDS FOR MEDICAL SCIENTISTS

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Arline H. and Curtis F. Gavin Professor of Medicine
Department of Pathology
Case Western Reserve University

Jack Antel, M.D.
Professor of Neurology and Neurosurgery
McGill University

Leslie J. Berg, Ph.D.
Professor, Department of Pathology
University of Massachusetts Medical School

Paul Buckmaster, D.V.M., Ph.D.
Professor
Dept. of Comparative Medicine
Stanford University

Kathleen Caron, Ph.D.
Professor of Cell Biology & Physiology and Genetics
Chair, Dept. of Cell Biology & Physiology
University of North Carolina-Chapel Hill

Aravinda Chakravarti, Ph.D.
Director, Center for Complex Disease Genomics
McKusick – Nathans Institute of Genetic Medicine
Johns Hopkins University School of Medicine

Tamara L. Doering, M.D., Ph.D.
Professor, Dept. of Molecular Microbiology
Washington University School of Medicine

H. Shelton Earp, III, M.D.
Professor and Director, Lineberger Comprehensive Cancer Center
University of North Carolina-Chapel Hill School of Medicine

Sarah Hollingsworth Lisanby, M.D.
Lawrence C. Katz Professor and Chair, Dept. of Psychiatry and Behavioral Sciences
Professor, Dept. of Psychology and Neuroscience
Duke University

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Stuart A. Wallace Chair and Professor
Dept. of Pathology and Molecular & Cellular Biology
Baylor College of Medicine

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Elizabeth J Ward Chair and Director, Center for Genetic Medicine
Northwestern University Feinberg School of Medicine

Louis J. Muglia, M.D., Ph.D.
Co-Director, Perinatal Institute, Division of Neonatology
University of Cincinnati Children's Hospital Medical Center
Director, Center for Preterm Birth Research
Professor, UC Dept. of Pediatrics

Jeffrey A. Whitsett, M.D. (Co-Chair)
Chief, Section of Neonatology, Perinatal and Pulmonary Biology
University of Cincinnati Children's Hospital

John York, Ph.D.
Natalie Overall Warren Professor and Chair
Dept. of Biochemistry
Vanderbilt University Medical Center

COLLABORATIVE RESEARCH TRAVEL GRANTS

Matthew Redinbo, Ph.D.
Professor and Chair, Department of Chemistry
University of North Carolina at Chapel Hill

Keith Weninger, Ph.D.
Associate Professor, Department of Physics
North Carolina State University

John York, Ph.D.
Natalie Overall Warren Professor and Chair
Dept. of Biochemistry
Vanderbilt University Medical Center

Diversity in Science

POSTDOCTORAL ENRICHMENT PROGRAM

Jerry L. Bryant, Ph.D.
Former Director, Science Education Initiatives
United Negro College Fund

Kami Kim, M.D.
Professor
Albert Einstein College of Medicine

Lee Limbird, Ph.D.
Professor of Biochemistry, Department of Life and Physical Sciences
Dean, School of Natural Sciences, Mathematics, and Business
Fisk University

Carla Mattos, Ph.D.
Professor
Northeastern University

Clifton A. Poodry, Ph.D.
Senior Fellow, Science Education
Howard Hughes Medical Institute

Michael Summers, Ph.D. (Chair)
HHMI Investigator Professor of Chemistry and Biochemistry
University of Maryland, Baltimore County

Infectious Diseases

INVESTIGATORS IN THE PATHOGENESIS OF INFECTIOUS DISEASE

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Professor of Microbiology and Immunology
Stanford University

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Professor of Microbiology and Molecular Genetics
University of Pittsburgh School of Medicine

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Washington University School of Medicine

Akiko Iwasaki, Ph.D.
HHMI Investigator
Professor of Immunobiology, and Molecular, Cellular & Developmental Biology
Yale University School of Medicine

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Penn State College of Medicine

Harmit S. Malik, Ph.D.
Member, Division of Basic Sciences &
HHMI Investigator
Fred Hutchinson Cancer Research Center

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Professor of Biological Sciences
Carnegie Mellon University

Robert S. Munford, M.D.
Senior Clinician and Deputy Director
Laboratory of Clinical Infectious Diseases
National Institute of Allergy and Infectious Diseases (NIAID)

Julie Overbaugh, Ph.D.
Member: Human Biology Division
Member: Public Health Sciences Division
Fred Hutchinson Cancer Research Center

E. John Wherry, Ph.D.
Professor of Microbiology and
Director, Institute of Immunology
University of Pennsylvania Perelman School of Medicine

Interfaces in Science

CAREER AWARDS AT THE SCIENTIFIC INTERFACE

Russ Altman, M.D., Ph.D.
Professor of Bioengineering, Genetics and Medicine
Director, Program in Biomedical Informatics
Stanford University

Adrienne L. Fairhall, Ph.D.
Associate Professor
University of Washington
Dept. of Physiology and Biophysics

Robert E. Kass, Ph.D.
Professor
Department of Statistics, Machine Learning, and the Center for Neural Basis of Cognitition
Carnegie Mellon University

Cato T. Laurencin, M.D., Ph.D. (Co-chair)
University Professor
Director, Institute for Regenerative Engineering & the Raymond and Beverly Sackler Center for Biomedical, Biological, Physical and Engineering Science
University of Connecticut Health Center

Alan S. Perelson, Ph.D.
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Los Alamos National Laboratory

Rob Phillips, Ph.D.
Professor of Applied Physics and Bioengineering
California Institute of Technology

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Departments of Chemistry, Biochemistry, Microbiology and Genomics
University of North Carolina-Chapel Hill

Bernardo L. Sabatini, M.D., Ph.D.
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Dept. of Neurobiology

Brent R. Stockwell, Ph.D.
Associate Professor Biological Sciences and Chemistry
Early Career Scientist of the Howard Hughes Medical Institute
Columbia University

Shankar Subramaniam, Ph.D. (Co-chair)
Joan and Irwin Jacobs Endowed Chair in Bioengineering and Systems Biology
University of California-San Diego

Julie A. Theriot, Ph.D.
Associate Professor
Department of Biochemistry
Department of Microbiology and Immunology
Stanford University School of Medicine

Michelle D. Wang, Ph.D.
Investigator, Howard Hughes Medical Institute
Professor of Physics
Cornell University

Population and Laboratory Based Sciences

INSTITUTIONAL PROGRAM UNIFYING POPULATION AND LABORATORY BASED SCIENCES

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Harvard Medical School

Pamela B. Davis, M.D., Ph.D.
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Mark Lathrop, Ph.D.
Scientific Director
McGill University and Genome Quebec Innovation Centre

H. Steven Wiley, Ph.D.
Director, Biomolecular Systems
Pacific Northwest National Laboratories

Lynn Zechiedrich, Ph.D.
Associate Professor
Baylor College of Medicine

Regulatory Science

INNOVATION IN REGULATORY SCIENCE AWARDS

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Professor of Medicine and Pharmacology and Molecular Science,
Johns Hopkins University School of Medicine
Associate Director for Drug Safety,
Official of Clinical Pharmacology
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Sandy Allerheiligen, Ph.D.
Vice President and Global Head
Modeling and Simulation
Merck Research Labs

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Professor of Medicine and Pharmacology
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Reproductive Sciences

PRETERM BIRTH INITIATIVE

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Director, Translational Research in Perinatal Biology and Medicine
University of California-San Francisco

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Vice Chair, Department of Obstetrics and Gynecology
Ohio State University Medical Center

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Co-Director, Perinatal Institute
Director, Center for the Prevention of Preterm Birth
University of Cincinnati Children's Hospital Medical Center
Director, Center for Preterm Birth Research
Professor, UC Dept. of Pediatrics

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Executive Vice President for Medical Affairs
Virginia Commonwealth University

Jenny Ting, Ph.D.
Alumni Distinguished Professor of Microbiology and Immunology
Lineberger Comprehensive Cancer Center
University of North Carolina at Chapel Hill

Jeffrey A. Whitsett, M.D.
Co-Director, Perinatal Institute
Chief, Section of Neonatology, Perinatal and Pulmonary Biology
University of Cincinnati Children's Hospital

Science Education

STUDENT SCIENCE ENRICHMENT PROGRAM

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Grassroots Science Museum Collaborative

Brenda Wojnowski, Ed.D.
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Marco Zarate
President and Co-founder
North Carolina Society of Hispanic Professionals

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Science Content Specialist
Discovery Education

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North Carolina New Schools

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The most up-to-date information about our programs, including complete application information, can be found on our website at **www.bwfund.org**.

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